



Latvia University
of Life Sciences
and Technologies



Nordic Association of Agricultural Scientists



Erasmus+



**Latvia University of Life Sciences and
Technologies**

**Faculty of Economics and Social
Development**

19th International Scientific Conference

**ECONOMIC SCIENCE FOR RURAL
DEVELOPMENT 2018**

**9-11 May 2018, Jelgava,
Latvia**

ECONOMIC SCIENCE FOR RURAL DEVELOPMENT

Proceedings of the
International Scientific Conference

No 48 Integrated and Sustainable Regional Development
Marketing and Sustainable Consumption

No 48

Jelgava

2018

ISSN 1691-3078

ISSN 2255-9930 on line

ISBN 978-9984-48-293-4 (E-book)

Abstracted / Indexed: ISI Web of Science, AGRIS, CAB Abstracts, EBSCOHost Academic Search Complete databases and Google Scholar

<http://www.esaf.ltu.lv/journals-and-proceedings>

<https://apps.webofknowledge.com/>

www.fao.org/agris/

<https://www.cabdirect.org/>

<http://search.ebscohost.com/login.aspx?direct=true&db=a9h&jid=25AP&site=ehost-live>

<https://scholar.google.lv/>

Programme Committee of International Scientific Conference

<i>Professor</i>	Baiba Rivza	Latvia University of Life Sciences and Technologies, Latvia
<i>Professor</i>	Andra Zvirbule	Latvia University of Life Sciences and Technologies, Latvia
<i>Professor</i>	Irina Pilvere	Latvia University of Life Sciences and Technologies, Latvia
<i>Professor</i>	Barbara Freytag-Leyer	Fulda University of Applied Sciences, Germany
<i>Professor</i>	Bo Ohlmer	Swedish University of Agricultural Sciences, Sweden
<i>Professor</i>	Wim J.M. Heijman	Wageningen University, the Netherlands
<i>Professor</i>	Bartosz Mickiewicz	West Pomeranian University of Technology, Poland
<i>Professor</i>	Maria Parlinska	Warsaw University of Life Sciences - SGGW, Poland
<i>Professor</i>	Alina Danilowska	Warsaw University of Life Sciences - SGGW, Poland
<i>Professor</i>	Janina Sawicka	Warsaw University of Life Sciences - SGGW, Poland
<i>Professor</i>	Joanna Szwacka-Mokrzycka	Warsaw University of Life Sciences - SGGW, Poland
<i>Professor</i>	Jacques Viaene	University of Gent, Belgium
<i>Professor</i>	Arild Sæther	University of Agder, Norway
<i>Professor</i>	Vilija Aleknevičienė	Aleksandras Stulginskis University, Lithuania
<i>Professor</i>	Rogier Schulte	Teagasc -The Agriculture and Food Development Authority of Ireland, Ireland
<i>Professor</i>	Csaba Forgacs	Budapest Corvinus University, Hungary
<i>Professor</i>	Elena Horska	Slovak University of Agriculture, Slovakia
<i>Senior researcher</i>	Magnar Forbord	Centre for Rural Research, Norway
<i>Professor</i>	Ingrida Jakusonoka	Latvia University of Life Sciences and Technologies, Latvia
<i>Professor</i>	Aina Dobeļe	Latvia University of Life Sciences and Technologies, Latvia
<i>Professor</i>	Modrite Pelse	Latvia University of Life Sciences and Technologies, Latvia
<i>Professor</i>	Inguna Leibus	Latvia University of Life Sciences and Technologies, Latvia
<i>Associate professor</i>	Aina Muska	Latvia University of Life Sciences and Technologies, Latvia
<i>Associate professor</i>	Anita Auzina	Latvia University of Life Sciences and Technologies, Latvia
<i>Associate professor</i>	Gunta Grinberga-Zalīte	Latvia University of Life Sciences and Technologies, Latvia
<i>Assistant professor</i>	Dina Popluga	Latvia University of Life Sciences and Technologies, Latvia

Time schedule of the conference

Preparation of the proceedings and organization: January 2018 – May 2018

Conference: 9-11 May 2018

Researchers from the following higher education institutions, research institutions, and professional organizations presented their scientific papers at the conference:

Academy of Agribusiness in Lomza	Poland
Alberta College	Latvia
Almaty University of Power Engineering and Telecommunications	Kazakhstan
Avesco Ltd	Latvia
Banking University of Ho Chi Minh City	Vietnam
College of Agriculture in Krizevci	Croatia
College of Law	Latvia
Cracow University of Economics	Poland
Czech University of Life Sciences Prague	Czech Republic
Estonian University of Life Sciences	Estonia
Gdynia Maritime University	Poland
Institute of Agricultural Resources and Economics	Latvia
Institute of Soil Science and Plant Cultivation State Research Institute	Poland
Institute of Technology and Life Sciences	Poland
ISTOM, College of International Agro-Development	France
Jan Kochanowski University in Kielce	Poland
Jelgava Municipality	Latvia
Kuban State University	Russia
Kujawsko-Pomorski Agricultural Advisory Centre in Minikowo	Poland
Latvia University of Life Sciences and Technologies	Latvia
Latvian Academy of Culture	Latvia
Latvian Academy of Sciences	Latvia
Latvian Association of Journalists	Latvia
Latvian Trade Union of Education and Science Employees (LIZDA)	Latvia
National Research Institute of Animal Production	Poland
Nicolaus Copernicus University in Torun	Poland
Pennsylvania State University	USA
Polish Academy of Sciences	Poland
Pope John Paul II State School of Higher Education in Biala Podlaska	Poland
Poznan University of Economics and Business	Poland
Poznan University of Life Sciences	Poland
Riga City Council	Latvia
Riga Technical University	Latvia
RISEBA University of Business, Arts and Technology	Latvia
Saeima Analytical Service	Latvia
Samara State Agricultural Academy	Russia
Samara State University of Economics	Russia
Skonto Plan Ltd	Latvia
Slovak University of Agriculture in Nitra	Slovakia
State University of Applied Sciences in Elblag	Poland
State University of Applied Sciences in Konin	Poland
Transilvania University of Brasov	Romania
Turiba University Ltd	Latvia
UniLaSalle, Campus de Rouen	France
Universitatea Politehnica Timisoara	Romania
University College of Economics and Culture	Latvia
University of Agriculture in Krakow	Poland
University of Bialystok	Poland
University of Gdansk	Poland
University of Latvia	Latvia

University of Perugia	Italy
University of Szczecin	Poland
University of Warmia and Mazury in Olsztyn	Poland
University of Zielona Gora	Poland
UTP University of Science and Technology	Poland
Vidzeme University of Applied Sciences	Latvia
Vytautas Magnus University	Lithuania
Warsaw University of Life Sciences – SGGW	Poland
Warsaw University of Technology	Poland
West Pomeranian University of Technology Szczecin	Poland
Wroclaw University of Economics	Poland
Wroclaw University of Science and Technology	Poland
WSB University in Gdansk	Poland
WSB University in Torun	Poland

Editorial Board

The Editorial Board of the edition of the International Scientific Conference Proceedings:

<i>Professor</i>	Vilija Alekneviene	Aleksandras Stulginskis University, Lithuania
<i>Professor</i>	Alina Danilowska	Warsaw University of Life Sciences - SGGW, Poland
<i>Professor</i>	Csaba Forgacs	Budapest Corvinus University, Hungary
<i>Professor</i>	Barbara Freytag-Leyer	Fulda University of Applied Sciences, Germany
<i>Professor</i>	Wim J.M. Heijman	Wageningen University, the Netherlands
<i>Professor</i>	Elena Horska	Slovak University of Agriculture, Slovakia
<i>Professor</i>	Bartosz Mickiewicz	West Pomeranian University of Technology, Poland
<i>Professor</i>	Bo Ohlmer	Swedish University of Agricultural Sciences, Sweden
<i>Professor</i>	Maria Parlinska	Warsaw University of Life Sciences - SGGW, Poland
<i>Professor</i>	Irina Pilvere	Latvia University of Life Sciences and Technologies, Latvia
<i>Professor</i>	Baiba Rivza	Latvia University of Life Sciences and Technologies, Latvia
<i>Professor</i>	Arild Sæther	University of Agder, Norway
<i>Professor</i>	Rogier Schulte	Teagasc -The Agriculture and Food Development Authority of Ireland, Ireland
<i>Professor</i>	Jacques Viaene	University of Gent, Belgium
<i>Professor</i>	Andra Zvirbule	Latvia University of Life Sciences and Technologies, Latvia

Editor – in-chief	Anita Auzina , Associate professor
Responsible compilers of the proceedings:	Gunta Grinberga-Zalite , Associate professor Simona Zvirgzdina , Lecturer
Assistants to the responsible compilers:	Dzesija Zeiferte

The authors are responsible for the content and language of their papers.

Reviewers

Every article included into the Proceedings was subjected to a scientific, including international review.

All reviewers were anonymous for the authors of the articles.

The following 143 reviewers from scientific and academic institutions of 10 countries (Latvia, Croatia, Estonia, France, Lithuania, Poland, Romania, Russia, Slovakia and Turkey) have written 163 reviews.

Gita Actina	<i>Dr.oec.</i> ; researcher of energy sector, Institute of Physical Energetics, Latvia
Mieczyslaw Adamowicz	<i>Dr.hab.</i> ; Pope John Paul II State School of Higher Education in Biala Podlaska, Poland
Gruzintseva Natalya Aleksandrovna	<i>Doctor of engineering; head of information-analytical center</i> , Ivanovo State Polytechnic University, Russia
Elina Apsite-Berina	<i>Dr.geogr.</i> ; University of Latvia, Latvia
Anita Auzina	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Agata Balinska	<i>Dr.hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Voldemars Bariss	<i>Dr.phil.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Anda Batraga	<i>Dr.oec.</i> ; University of Latvia, Latvia
Iluta Berzina	<i>Dr.oec.</i> ; Latvian Council of Science expert in economics, Latvia
Hasan Bilgehan	<i>PhD</i> ; Adana Science and Technology University, Turkey
Dina Bite	<i>Dr.sc.soc.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Olga Bogdanova	<i>Dr.oec.</i> ; Riga Technical University, Latvia
Piotr Borowski	<i>Dr.hab.</i> ; University of Warmia and Mazury in Olsztyn, Poland
Agnieszka Brelik	<i>Dr.hab.</i> ; West Pomeranian University of Technology Szczecin, Poland
Agrita Briede	<i>Dr.geogr.</i> ; University of Latvia, Latvia
Janis Brizga	<i>Dr. Geogr.</i> ; University of Latvia, Latvia
Sonja Brlecic Valcic	<i>PhD</i> ; Libertas International University, Zagreb, Croatia
Romeo Catalin Cretu	<i>Prof.</i> ; University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Ceslovas Christauskas	<i>Dr.</i> ; Kaunas University of Technology, Lithuania
Mariola Chrzanowska	<i>PhD</i> ; Warsaw University of Life Sciences – SGGW, Poland
Agnieszka Cienciala	<i>Dr.ing.</i> ; Kielce University of Technology, Poland
Ewa Cieslik	<i>PhD</i> ; Poznan University of Economics and Business, Poland
Bozena Denisow	<i>Dr.hab.</i> ; University of Life Sciences in Lublin, Poland
Aina Dobeles	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Signe Dobelniece	<i>PhD</i> ; Latvia University of Life Sciences and Technologies, Latvia
Vadims Donovics	<i>Dr.oec.</i> ; University of Latvia, Latvia
Aija Eglite	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Krzysztof Firlej	<i>Dr.hab.</i> ; Cracow University of Economics, Poland
Justyna Franc-Dabrowska	<i>Dr.hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Barbara Golebiewska	<i>PhD hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Jaroslav Golebiewski	<i>Dr.hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Zaigonis Graumanis	<i>Dr.phil.</i> ; Liepaja University, Latvia
Gunta Grinberga-Zalite	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Anda Grinfelde	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Liva Grinevica	<i>Dr.oec.</i> ; Riga Technical University, Latvia
Mariola Grzybowska-Brzezinska	<i>Dr.hab.</i> ; University of Warmia and Mazury in Olsztyn, Poland
Marta Eva Gwiazdzinska-Goraj	<i>Dr.</i> ; University of Warmia and Mazury in Olsztyn, Poland
Baiba Holma	<i>Dr.philol.</i> ; University of Latvia, Latvia
Elena Horska	<i>Dr.ing.</i> ; Slovak University of Agriculture in Nitra, Slovakia
Jan Hybel	<i>Dr.hab.</i> ; University of Computer Sciences and Economics in Olsztyn, Poland
Janis Ievins	<i>Dr.oec.</i> ; Riga Technical University, Latvia
Ingrida Jakusonoka	<i>Dr.oec.</i> ; Latvia University of Agriculture, Latvia
Pawel Jamroz	<i>PhD</i> ; Bialystok University, Poland
Liga Jankova	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Vladimirs Jemeljanovs	<i>Dr.sc.ing.</i> ; Riga Technical University, Latvia

Elita Jermolajeva	<i>Dr.oec.</i> ; Head of the Development Section of Preili Municipality Council, Latvia
Laima Jeseviciute-Ufartiene	<i>Dr.</i> ; Lithuanian Sports University, Lithuania
Sandra Jekabsone	<i>Dr.oec.</i> ; University of Latvia, Latvia
Talavs Jundzis	<i>Dr.habil.sc.pol., Dr.iur.</i> ; University of Latvia, Latvia
Inara Jurgena	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Evelin Jurgenson	<i>PhD</i> ; Estonian University of Life Sciences, Estonia
Slawomir Juszezyk	<i>Dr.hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Jozef Kania	<i>Dr.hab.ing</i> ; University of Agriculture in Krakow, Poland
Malgorzata Karolewska- Szparaga	<i>PhD</i> ; Higher Vocational State School in Wloclawek, Poland
Ryszard Kata	<i>Dr.hab.ing.</i> ; University of Rzeszow, Poland
Dace Kaufmane	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Janis Kaulins	<i>Dr.geogr</i> ; University of Latvia, Latvia
Maja Kiba-Janiak	<i>PhD</i> ; Wroclaw University of Economics, Poland
Kitija Kirila	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Roman Kisiel	<i>Dr.hab.</i> ; The State University of Applied Sciences in Elblag, Poland
Bogdan Klepacki	<i>Dr.hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Vyacheslav Kornev	<i>Dr.oec.</i> ; Samara State University of Economics, Russia
Grzegorz Koszela	<i>PhD</i> ; Warsaw University of Life Sciences – SGGW, Poland
Joanna Kott	<i>PhD</i> ; WSB University in Wroclaw, Poland
Andrzej Krasnodebski	<i>Dr.hab.ing.</i> ; University of Agriculture in Krakow, Poland
Ilmars Kreituss	<i>Dr.chem.</i> ; "RISEBA" University of Business, Arts and Technology, Latvia
Zaiga Krisjane	<i>Dr.geogr.</i> ; University of Latvia, Latvia
Ginta Kronberga	<i>Dr.sc.soc.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Juris Krumins	<i>Dr.habil.oec.</i> ; University of Latvia, Latvia
Zenija Kruzmetra	<i>Dr.geogr.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Krystyna Krzyzanowska	<i>Dr.hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Piotr Kulyk	<i>Dr.hab.inz.</i> ; University of Zielona Gora, Poland
Janis Kusis	<i>Dr.hist.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Anda Lake	<i>Dr.sc.soc</i> ; Riga Stradins University, Latvia
Dimitri Laroutis	<i>PhD hab.</i> ; Ecole de Management de Normandie, France
Olga Lavrinenko	<i>Dr.oec.</i> ; Daugavpils University, Latvia
Andrejs Lazdins	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Juri Lehtsaar	<i>PhD</i> ; Estonian University of Life Sciences, Estonia
Inguna Leibus	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Marzena Lemanowicz	<i>PhD</i> ; Warsaw University of Life Sciences – SGGW, Poland
Lasma Licite	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Nina Linde	<i>Dr.oec.</i> ; Latvian Academy of Sciences, Latvia
Antra Line	<i>Dr.sc.admin.</i> ; Riga Teacher Training and Educational Management Academy, Latvia
Janusz Majewski	<i>Dr.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Jelena Malahova	<i>Dr.oec.</i> ; Riga Technical University, Latvia
Marek Matejun	<i>Dr.hab.ing.</i> ; Lodz University of Technology, Poland
Gunita Mazure	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Marek Metslaid	<i>PhD</i> ; Estonian University of Life Sciences, Estonia
Bartosz Mickiewicz	<i>Dr.hab.ing.</i> ; West Pomeranian University of Technology in Szczecin, Poland
Jakub Mikiciuk	<i>PhD</i> ; Warsaw University of Life Sciences – SGGW, Poland
Jolanta Millere	<i>PhD</i> ; Latvia University of Life Sciences and Technologies, Latvia
Ingrida Millere	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Aina Muska	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Kaspars Naglis-Liepa	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Edyta Niemiec	<i>PhD</i> ; Academy of European Integration in Szczecin, Poland
Sergei Obusehenko	<i>D.s.-ch.n.</i> ; Agrochemical Service Station "Samarskaya", Russia
Oskars Onzevs	<i>Dr.sc.ing</i> ; Turiba University Ltd, Latvia
Luiza Ossowska	<i>Dr.</i> ; Poznan University of Economics and Business, Poland
Joanna Paliszkiewicz	<i>Dr.hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Maria Parlinska	<i>Dr.hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland

Velta Parsova	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Andrzej Parzonko	<i>Dr.hab.ing.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Līga Paula	<i>Dr.sc.soc.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Modrite Pelse	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Irina Pilvere	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Marian Podstawka	<i>Dr.hab.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Iwona Pomianek	<i>PhD</i> ; Warsaw University of Life Sciences – SGGW, Poland
Lukasz Poplawski	<i>PhD</i> ; Jagiellonian University in Krakow, Poland
Dina Popluga	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Līga Proskina	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Piotr Prus	<i>Dr.</i> ; UTP University of Science and Technology, Poland
Edgars Racko	<i>Dr.oec.</i> ; Daugavpils University, Latvia
Līga Rasnaca	<i>Dr.sc.soc.</i> ; University of Latvia, Latvia
Baiba Rivza	<i>Dr.habil.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Andrejs Romanovs	<i>Dr.sc.ing.</i> ; Riga Technical University, Latvia
Anda Rozukalne	<i>Dr.sc.soc.</i> ; Riga Stradins University, Latvia
Annieszka Sapa	<i>Dr.hab.</i> ; Poznan University of Economics and Business, Poland
Lukasz Satola	<i>PhD</i> ; University of Agriculture in Krakow, Poland
Agnieszka Siedlecka	<i>PhD</i> ; Pope John Paul II State School of Higher Education in Biala Podlaska, Poland
Ilze Sproge	<i>Dr.sc.administr.</i> ; Head of Department of Management, Transport and Telecommunication Institute, Latvia
Aivars Stankevics	<i>Dr.oec.</i> ; Riga Stradins University, Latvia
Maria Ewa Szatlach	<i>Dr.hab.</i> ; Kazimierz Wielki University, Poland
Elzbieta Szymanska	<i>PhD</i> ; Warsaw University of Life Sciences – SGGW, Poland
Kaspars Steinbergs	<i>Dr.oec.</i> ; Riga Technical University, Latvia
Romēna Sulca	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Valentina Urbane	<i>Dr.sc.ing.</i> ; Riga Technical University, Latvia
Anastasija Vilcina	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Irija Vitola	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Zane Vitolina	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Juris Vuguls	<i>Dr.phil.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Adam Was	<i>PhD</i> ; Warsaw University of Life Sciences – SGGW, Poland
Natalia Wasilewska	<i>Dr.hab.</i> ; Jan Kochanowski University in Kielce, Poland
Wioletta Wereda	<i>PhD</i> ; Siedlce University of Natural Sciences and Humanities, Poland
Andrzej Piotr Wiatrak	<i>Dr.hab.</i> ; University of Warsaw, Poland
Barbara Wieliczko	<i>PhD</i> ; Institute of Agricultural and Food Economics – National Research Institute (IAFE-NRI), Poland
Justyna Wojcik-Len	<i>Dr.ing.</i> ; Rzeszow School of Engineering and Economics (WSI-E), Poland
Agnieszka Wojewodzka-Wiewiorska	<i>Dr.ing.</i> ; Warsaw University of Life Sciences – SGGW, Poland
Agata Zak	<i>PhD</i> ; Institute of Agricultural and Food Economics – National Research Institute (IAFE-NRI), Poland
Artur Zimny	<i>Dr.</i> ; State School of Higher Professional Education in Konin, Poland
Aija Zobena	<i>Dr.sc.soc.</i> ; University of Latvia, Latvia
Andra Zvirbule	<i>Dr.oec.</i> ; Latvia University of Life Sciences and Technologies, Latvia
Rosita Zvirgzdina	<i>Dr.oec.</i> ; Turība University Ltd, Latvia
Marga Zivitere	<i>Dr.oec.</i> ; ISMA University, Latvia

Publication Ethics and Malpractice Statement for the International Scientific Conference "Economic Science for Rural Development"

The Editorial Board is responsible for, among other, preventing publication malpractice. Unethical behaviour is unacceptable and the authors who submit articles to the Conference Proceedings affirm that the content of a manuscript is original. Furthermore, the authors' submission also implies that the material of the article was not published in any other publication; it is not and will not be presented for publication to any other publication; it does not contain statements which do not correspond to reality, or material which may infringe upon the intellectual property rights of another person or legal entity, and upon the conditions and requirements of sponsors or providers of financial support; all references used in the article are indicated and, to the extent the article incorporates text passages, figures, data or other material from the works of others, the undersigned has obtained any necessary permits as well as the authors undertake to indemnify and hold harmless the publisher of the proceedings and third parties from any damage or expense that may arise in the event of a breach of any of the guarantees.

Editors, authors, and reviewers, within the International Scientific Conference "**Economic Science for Rural Development**" are to be fully committed to good publication practice and accept the responsibility for fulfilling the following duties and responsibilities, as set by the *COPE Code of Conduct and Best Practice Guidelines for Journal Editors of the Committee on Publication Ethics (COPE)*.

It is necessary to agree upon standards of expected ethical behaviour for all parties involved in the act of publishing: the author, the editor, the peer reviewer, and the publisher.

DUTIES OF EDITORS

Publication decisions

The Editorial Board is responsible for deciding which of the articles submitted to the Conference Proceedings should be published. The Editorial Board may be guided by the policies of ethics and constrained by such legal requirements as shall then be in force regarding libel, copyright infringement and plagiarism. The editor may confer with other editors or reviewers in making this decision.

Fair play

An editor at any time evaluate manuscripts for their intellectual content without regard to the nature of the authors or the host institution including race, gender, sexual orientation, religious belief, ethnic origin, citizenship, or political philosophy of the authors.

Confidentiality

The editor and any editorial staff must not disclose any information about a submitted manuscript to anyone other than the corresponding author, reviewers, potential reviewers, other editorial advisers, and the publisher, as appropriate.

Disclosure and conflicts of interest

Unpublished materials disclosed in a submitted manuscript must not be used in an editor's own research without the express written consent of the author.

DUTIES OF REVIEWERS

Every submitted manuscript has been reviewed by one reviewer from the author's native country or university, while the other reviewer came from another country or university. The third reviewer was chosen in the case of conflicting reviews. All reviewers were anonymous for 9 the authors of the articles, and the reviewers presented blind reviews. Every author received the reviewers' objections or recommendations. After receiving the improved (final) version of the manuscript and the author's comments, the Editorial Board of the conference evaluated each article.

Contribution to editorial decisions

Peer review assists the editor in making editorial decisions and through the editorial communications with the author may also assist the author in improving the paper.

Promptness

Any selected referee who feels unqualified to review the research reported in a manuscript or knows that its prompt review will be impossible should notify the editor and excuse himself from the review process.

Confidentiality

Any manuscripts received for review must be treated as confidential documents. They must not be shown to or discussed with others except as authorised by the editor.

Standards of objectivity

Reviews should be conducted objectively. Personal criticism of the author is inappropriate. Referees should express their views clearly with supporting arguments.

Acknowledgement of sources

Reviewers should identify relevant published work that has not been cited by the authors. Any statement that an observation, derivation, or argument had been previously reported should be accompanied by the

relevant citation. A reviewer should also call to the editor's attention any substantial similarity or overlap between the manuscript under consideration and any other published paper of which they have personal knowledge.

Disclosure and conflict of interest

Privileged information or ideas obtained through peer review must be kept confidential and not used for personal advantage. Reviewers should not consider manuscripts in which they have conflicts of interest resulting from competitive, collaborative, or other relationships or connections with any of the authors, companies, or institutions connected to the papers.

DUTIES OF AUTHORS

Reporting standards

The authors of reports of original research should present an accurate account of the work performed as well as an objective discussion of its significance. Underlying data should be represented accurately in the paper. A paper should contain sufficient detail and references to permit others to replicate the work. Fraudulent or knowingly inaccurate statements constitute unethical behaviour and are unacceptable.

Data access and retention

The authors are asked to provide the raw data in connection with a paper for editorial review, and should be prepared to provide public access to such data (consistent with the ALPSP-STM Statement on Data and Databases), if practicable, and should in any event be prepared to retain such data for a reasonable time after publication.

Originality and plagiarism

The authors should ensure that they have written entirely original works, and if the authors have used the work and/or words of others that this has been appropriately cited or quoted.

Multiple, redundant or concurrent publication

An author should not in general publish manuscripts describing essentially the same research in more than one journal or primary publication. Submitting the same manuscript to more than one journal concurrently constitutes unethical publishing behaviour and is unacceptable.

Acknowledgement of sources

Proper acknowledgment of the work of others must always be given. The authors should cite publications that have been influential in determining the nature of the reported work.

Authorship of the paper

Authorship should be limited to those who have made a significant contribution to the conception, design, execution, or interpretation of the reported study. All those who have made significant contributions should be listed as co-authors. Where there are others who have participated in certain substantive aspects of the research project, they should be acknowledged or listed as contributors.

The corresponding author should ensure that all appropriate co-authors and no inappropriate co-authors are included on the paper, and that all co-authors have seen and approved the final version of the paper and have agreed to its submission for publication.

Hazards and human or animal subjects

If the work involves chemicals, procedures or equipment that have any unusual hazards inherent in their use, the author must clearly identify these in the manuscript.

Disclosure and conflicts of interest

All authors should disclose in their manuscript any financial or other substantive conflict of interest that might be construed to influence the results or interpretation of their manuscript. All sources of financial support for the project should be disclosed.

Fundamental errors in published works

When an author discovers a significant error or inaccuracy in his/her own published work, it is the author's obligation to promptly notify the editor or publisher and cooperate with the editor to retract or correct the paper.

Editorial Board

Foreword

The international scientific conference "Economic Science for Rural Development" is organized annually by the Faculty of Economics and Social Development of Latvia University of Agriculture.

The proceedings of the conference are published since 2000.

The scientific papers presented in the conference held on 9-11 May 2018 are published in 3 thematic volumes:

No 47 Rural Development and Entrepreneurship
Production and Co-operation in Agriculture

No 48 Integrated and Sustainable Regional Development
Marketing and Sustainable Consumption

No 49 Bioeconomy
Finance and Taxes
Home Economics
New Dimensions in the Development of Society

The proceedings contain scientific papers representing not only the science of economics in the diversity of its sub-branches, but also other social sciences (sociology, political science), thus confirming inter-disciplinary development of the contemporary social science.

This year for the first time the conference includes the section on a new emerging kind of economy-bioeconomy. The aim of bioeconomy is to use renewable biological resources in amore sustainable manner. Bioeconomy can also sustain a wide range of public goods, including biodiversity. It can increase competitiveness, enhance Europe's self-reliance and provide jobs and business opportunities.

The Conference Committee and Editorial Board are open to comments and recommendations concerning the preparation of future conference proceedings and organisation of the conference.

Acknowledgements

The Conference Committee and editorial Board are open to comments and recommendations for the development of future conference proceedings and organisation of international scientific conferences.

We would like to thank all the authors, reviewers, members of the Programme Committee and the Editorial Board as well as supporting staff for their contribution organising the conference.

On behalf of the conference organisers

Anita Auzina

Associate professor of Faculty of Economics and Social Development
Latvia University of Life Sciences and Technologies

Contents

INTEGRATED AND SUSTAINABLE REGIONAL DEVELOPMENT.....	16
EVALUATION OF COMPETITIVENESS OF INDUSTRIES IN REGIONS AND GLOBAL MARKET	17
Astra Auzina-Emsina ¹ Dr.oec.; Velga Ozolina ¹ Dr.oec.	17
KEY TRENDS AND ASPECTS INFLUENCING CHANGES INTO SPATIAL PLANNING SYSTEMS AND PRACTICES IN EUROPE	26
Armands Auziņš ¹ Dr.oec.	26
THE APPLICATION OF THE DYNAMIC CLASSIFICATIONS IN ORDER TO EVALUATE THE CHANGES OF THE EUROPEAN UNION'S SUSTAINABLE DEVELOPMENT	36
Iwona Bak, Associate Professor; Katarzyna Cheba, PhD	36
SELECTED EUROPEAN UNION OPERATIONAL FUNDS' IMPACT ON NEWLY EMERGING SMES IN THE LUBELSKIE VOIVODESHIP	44
Katarzyna Boratynska ¹ PhD.; Emilia Andrusiewicz ¹ MSc.....	44
THE SOCIAL CONSTRUCTION OF ENVIRONMENT IN LATVIAN LOCAL NEWSPAPERS	52
Ianis Bucholtz ¹ Dr. sc. comm.	52
CROSS-BORDER COOPERATION IN RURAL TERRITORIES IN CONTEXT OF THE EU FUNDS: CASE OF LATVIA-ESTONIA-RUSSIA BORDER AREA	62
Santa Daume ¹ PhD Cand.	62
CHANGES IN EMPLOYMENT IN THE PRIMARY SECTOR ACROSS PREDOMINANTLY RURAL POLISH SUBREGIONS	70
Nina Drejerska ¹ PhD	70
REGIONAL PATTERNS OF BELONGING AMONG YOUNG LATVIAN RETURNEES	77
Elina Apsite-Berina ¹ Dr. geogr., Researcher; Zaiga Krisjane ² Dr.geogr., Professor; Guido Sechi ³ PhD., Researcher; Maris Berzins ⁴ Dr. geogr., Assistant Professor	77
LIFE QUALITY ASSESSMENT IN THE CITY OF JELGAVA	85
Līga Feldmane ¹ Mg.geogr.	85
TRENDS IN CHANGES OF OUTCOMES AND INVESTMENT OUTLAYS IN ENVIRONMENTAL PROTECTION AND WATER MANAGEMENT IN SPATIAL TERMS IN POLAND	93
Barbara Golebiewska ¹ PhD hab., prof. WULS	93
PROBLEMS OF TEACHERS' LABOUR RIGHTS IN REGIONS OF LATVIA	102
Anda Grinfelde ¹ Dr.oec.; Līga Paula ¹ Dr.sc.soc.; Ilze Prizevoite ¹ Mg.oec.....	102
MATHEMATICAL MODELS OF INTERFERENCE BETWEEN THE LEVELS OF ENVIRONMENTAL CONTAMINATION AND REGIONAL INDUSTRIAL GROWTH	111
Angelina Ilchenko ¹ Dr. Sc. (Econ.), Prof.; Luo Juan ² Cand. Sc. (Econ.) and Alexander Krovyakov ³ Cand. Sc. (Econ.).....	111
EVALUATION OF STATE OF CULTURAL AND HISTORICAL OBJECTS IN JĒKABPILS CITY IN CONTEXT OF SUSTAINABLE DEVELOPMENT.....	120
Anda Jankava ¹ Dr.oec.; Aina Palabinska ² Mg.oec., Sintija Pastare ³ Mg.sc.ing.	120
MONITORING AND REPORTING SYSTEM FOR MUNICIPAL SUSTAINABLE DEVELOPMENT GOVERNANCE IN LATVIA: SUSTAINABILITY OUTLOOK.....	129
Jānis Kaulins ¹ Dr.Geogr., Raimonds Ernsteins ² Dr.habil .Paed., Ivars Kudrenickis ³ Dr.Sc.ing.	129
IMPACT OF REAL PROPERTY MARKET ON CHANGES OF CADASTRAL VALUE AND FORMATION OF SAMARA REGIONAL BUDGET.....	138
Gabibulla Khasaev ¹ Dr.Sc., professor; Alexandr Vlasov ² Cand.Sc., professor; Dariya Vasilieva ³ Cand.Sc., docent; Valentin Lobanov ⁴ and Velta Parsova ⁴ Dr.oec., professor	138
EXPORT TARGET COUNTRY SELECTION TOOL FOR MORE COMPETITIVE ENTERPRISES	145
Megija Krievina ¹ Bc.oec.; Velga Ozolina ¹ Dr.oec., associate professor	145
GOVERNMENT-CITIZEN COMMUNICATION IN RURAL MUNICIPALITIES IN LATVIA	154
Zenija Kruzmetra ¹ Dr.geogr., assist.prof.; Dina Bite ¹ Dr.sc.soc., assoc.prof.; Ginta Kronberga ¹ Dr.sc.soc., assist.prof.	154
ENHANCING EFFICIENCY OF SMES IN LATVIA	163
Iveta Linina ¹ Dr. oec., Rosita Zvirgzdina ¹ Dr. oec.	163
ON THE MEAN SIZE OF LAND UNITS	172
Siim Maasikamae ¹ Ph.D.	172
THE IMPACT OF NATURA 2000 PROTECTED AREAS ON THE ECONOMIC DEVELOPMENT OF COMMUNITIES LOCATED WITHIN THE GREEN LUNGS OF POLAND (NORTH-EASTERN POLAND)	180
Antoni Mickiewicz ¹ , Bartosz Mickiewicz ¹ ,	180
EMPLOYMENT AND WAGES IN FISHERIES OF THE BALTIC RIM COUNTRIES	186
Bartosz Mickiewicz ¹ , Wojciech Brocki ²	186

EVALUATION OF EMAS SYSTEM FUNCTIONING IN PRIVATE SECTOR UNITS, DCT GDANSK INCLUDED	195
Janusz Myszczyzyn, PhD.....	195
THE CODE OF GOOD AGRICULTURAL PRACTICE AS AN ELEMENT OF SUSTAINABLE DEVELOPMENT BASED ON OPINIONS OF FARM OWNERS.....	204
Aleksandra Plonka, PhD Eng.; Izabela Wielewska, PhD.....	204
ANALYSIS OF FIRE RISK IMPACT ON REAL ESTATE IN LATVIA.....	212
Nikolajs Rauza, Mg.sc.; Tatjana Tambovceva, Dr.oec/ Professor.....	212
ANALYSIS OF AID GUIDELINES AIMED FOR DEVELOPMENT OF BUSINESS ENVIRONMENT ATTRACTIVENESS IN PIERIGA REGION	220
Baiba Rivza ¹ , Dr.habil.oec., prof.; Ligita Azena ² , Mg.sc.soc.	220
SEGMENTATION OF THE EU COUNTRIES IN TERMS OF THE SHEEP PRODUCTION	229
Tomasz Rokicki ¹ , PhD, habil.; Marcin Ratajczak ² , PhD	229
LABOUR SUPPLY IN LATVIA AND ITS IMPACTING FACTORS.....	237
Aija Sannikova ¹ , Dr.oec., Tamara Grizane ² , Dr.oec.	237
DEVELOPMENT OF TRANSPORT INFRASTRUCTURE IN LATVIA, LITHUANIA AND POLAND WITH SUPPORT OF STRUCTURAL FUNDS	244
Maciej Stawicki ¹ , PhD.....	244
THE IMPORTANCE OF PROTECTED AREAS IN THE COUNTRIES OF THE EUROPEAN UNION.....	252
Joanna Stefanczyk ¹ , MSc; Le Hoang Long , MSc.....	252
ECONOMIC POTENTIAL OF "GREEN" ECONOMY IN DEVELOPMENT OF RURAL TERRITORIES.....	259
Tatjana Tambovceva , Dr.oec.; Maria Tereshina , Dr.oec.....	259
RECENT CHANGES IN AGRICULTURAL LAND OWNERSHIP AND TRANSACTION STRUCTURE IN LATVIA... 	268
Visvaldis Valtensbergs ¹ , Dr. sc. pol.; Zanita Avotniece ² , M.geogr.; Ilona Beizitere ³ , M.eoc.; Inese Grumolte-Lerhe ⁴ , Dr. sc.pol.	268
LANDSCAPE PLANNING AS AN ASSET FOR REGIONAL DEVELOPMENT IN LATVIA.....	276
Margarita Volosina, Msc. Spatial Planning; Anita Zarina, Dr.geogr., Docent; Olgerts Nikodemus, Dr.geogr., Professor; Ivo Vinogradovs, Msc.geogr., Researcher	276
MULTIDIMENSIONAL COMPARATIVE ANALYSIS OF SOCIO-ECONOMIC DEVELOPMENT OF RURAL AREAS OF THE MASOVIAN PROVINCE IN YEARS 2004-2016.....	284
Mariola Chrzanowska Dr. oec., Monika Zielinska-Sitkiewicz Dr. oec.,.....	284
TOURIST PROFILE IN ZEMGALE	291
Aija Eglite ¹ , Dr.oec., professor; Liene Klauza ² , Mg.oec.	291
ECONOMIC COSTS OF YOUTH UNEMPLOYMENT IN THE EUROPEAN UNION	299
Liva Grinevica ¹ , Dr.oec.; Baiba Rivza ² , Dr.habil.oec.	299
ASSESSMENT OF THE DEVELOPMENT OF A BORDER AREA USING POLAND'S EASTERN BORDERLAND AS AN EXAMPLE.....	306
Agnieszka Malkowska ¹ , Ph.D.; Arkadiusz Malkowski ² , Ph.D.....	306
CORPORATE SOCIAL RESPONSIBILITY: MEASURING AND REPORTING THE EFFECTIVENESS OF COMMUNITY INVOLVEMENT ON THE BASIS OF THE LBG MODEL.....	313
Agnieszka Parlinska ¹ , PhD; Ewa Stawicka ² , PhD.....	313
AN APPROACH OF PLS METHOD APPLIED TO MODEL THE RICE SELF-SUFFICIENCY OF PEASANT HOUSEHOLDS IN AT SINANANA MADAGASCAR.....	321
Manase Bezara ¹ , Dr., Salima Taibi ² , Dr.Hab.....	321
MARKETING AND SUSTAINABLE CONSUMPTION.....	328
CONSUMER BEHAVIOR AFFECTING FACTORS LEADING TO INCREASED COMPETITIVENESS DURING HOLIDAY SEASON	329
Anda Batraga ¹ , Dr.oec./prof.; Jelena Salkovska ² , Dr.oec./ assist.prof.; Aija Legzdina ³ , Mg.Sc./admin.; Ilvars Rukers ⁴ Mg.Sc./admin.; Santa Bormane ⁵ Mg.Sc./admin.	329
DIGITAL PROMOTION AS SOLUTION FOR INTEGRATED MARKETING COMMUNICATION IN BUSINESS	338
Santa Bormane ¹ , Mg. oec. / Candidate for Doctoral Degree in Economics; Anda Batraga ² , assoc. prof. / Dr.oec.	338
MEDICAL TOURISM SERVICES IN THE BALTIC STATES: DENTISTRY	348
Tamara Grizane ¹ , Dr.oec.; Liga Jankova ² , Dr.oec.; Aija Sannikova ³ , Dr.oec.; Inguna Jurgelane ⁴ , Dr. oec.	348
PERFORMANCE OF SOCIAL BENEFIT COMMITMENT IN MARKETING ORIENTATION	356
Silvije Jercinovic ¹ , MSc/ senior lecturer; Matija Muzina ² , student; Kristina Svrznjak ³ , PhD/ professor and Sandra Kantar ⁴ , PhD/ senior lecturer.....	356
PERCEPTION OF CORPORATE SOCIAL RESPONSIBILITY– A COMPARISON STUDY BETWEEN POLISH AND SLOVAK CONSUMERS	364
Renata Matysik-Pejas ¹ , Dr. Ing.; Elena Horska ² , prof. Dr. Ing.	364

MARKETING ACTIVITIES OF ENTITIES ON THE MILK MARKET AND SUSTAINABLE CONSUMPTION OF DAIRY PRODUCTS.....	373
Katarzyna Olszewska ¹ , Anetta Waśniewska ² , Ph. D.....	373
EFFECT OF VISUAL CUES ON STATIC ADVERTISEMENT VIEWING PATTERNS.....	380
Lina Pileliene ¹ , PhD; Viktorija Grigaliunaite ²	380
EXPENSES OF FARM HOUSEHOLDS ON CONSUMER GOODS AND SERVICES IN 2006-2016 IN POLAND	388
Agnieszka Siedlecka ¹ , PhD; Izabela Wielewska ² , PhD	388
SELECTED BUYING BEHAVIOURS OF CATTLE BREEDERS ON THE POLISH INDUSTRIAL FEED MARKET.....	395
Monika Szafranska ¹ , Dr. Ing.....	395
THE IMPACT OF THE LEVEL OF ECONOMIC DEVELOPMENT ON FOOD CONSUMPTION IN POLAND.....	402
Joanna Szwacka-Mokrzycka ¹	402
THE ASSESSMENT OF EUROPEAN BUSINESS EXCELLENCE MODEL CRITERIA PERFORMANCE IN LATVIAN ENTERPRISES	409
Andzela Veselova· Mg. oec.,	409

INTEGRATED AND SUSTAINABLE REGIONAL DEVELOPMENT

EVALUATION OF COMPETITIVENESS OF INDUSTRIES IN REGIONS AND GLOBAL MARKET

Astra Auzina-Emsina¹ Dr.oec.; Velga Ozolina² Dr.oec.
^{1, 2} Riga Technical University

Abstract. The paper is devoted to the analysis and evaluation of competitiveness of industries in regions and global market. In the research, one EU economy (Latvia) is examined; however, the methodology and set of indicators can be applied to other EU countries. The aim of the research is to elaborate a set of indicators, in order to evaluate the competitiveness of industries. Productivity and ratio of exports to imports by industries are used to identify the competitiveness of industries in the regions and in global market. The authors argue that that competitiveness of industries in the regions and global market is inhomogeneous and the average national level indicators do not disclose the regional specifics due to the large distribution of indicators' values. The authors argue that the competitiveness of industries in global market are strongly determined by productivity, hence we recommend the policy makers to elaborate programmes that are aimed at potential productivity improvements in industries that are located in the regions and hence use the available EU funds in this financial period as efficiently as possible. Since Latvia is regarded as one region in NUTS 2, the regional development and cohesion is heavily dependent on the national rather than the EU activities.

Key words: competitiveness, global market, competitiveness of industries, regions, industries in Latvia.

JEL code: O11, O14, R11, R12

Introduction

Evaluation of competitiveness of industries in regions within a country and in the global market is significant due to the fact that the European Union (EU) moves towards the higher competitiveness and stronger economies. In the current financial period (in 2014–2020 period), one of the major EU policies, Cohesion policy, is focused strongly on supporting smart growth with particular emphasis on innovation and high growth companies and includes policy programmes aimed at increasing the innovative capacity of small and medium-sized enterprises (SMEs) (European Commission, 2017). The European Commission estimates that for the current financial period, for example, Cohesion policy will support 1.1 million SMEs (European Commission, 2017). SME as a legal object is strictly defined by Commission Recommendation (European Commission, 2003).

It should be stressed that in the EU, the regions eligible for support from Regional or Cohesion policy have been defined at NUTS 2 level and hence the Cohesion report has so far mainly been prepared at NUTS 2 level. But in several countries (including Latvia) there is only one region according to NUTS 2 level and hence the national government institutions, non-governmental organisations (NGOs), research, academic etc. institutions have limited options to evaluate the actual situation regarding regional economic and social development and take effective actions. The hypothesis of this research is: competitiveness of industries in the regions and global market is inhomogeneous and the average national level indicators do not disclose the regional specifics.

The aim of the research is to analyse and evaluate the competitiveness of industries in Latvia's regions and global market in the framework of limited statistical data. The tasks of the research: 1) review of previous studies, researches, reports, policy documents; 2) elaboration of set of indicators; 3) collection and analysis of available statistical data in NUTS 3 level; 4) elaboration of recommendations to policy makers etc. In the research, the main focus is on one EU country - Latvia; however, the methods and practical findings are topical to and can be applied in many EU member countries as well the potential EU member countries, taking into account the size of the

¹Corresponding author. Phone: +371 26179993. E-mail: astra.auzina-emsina@rtu.lv

²Corresponding author. Phone: +371 26521370. E-mail: velga.ozolina@rtu.lv

country and the economy and regional breakdown of a country according to NUTS 2. In the research, quantitative and qualitative research methods are applied.

The research period is from 2010 to 2016 (or to the latest data available). The statistical analysis within the research mainly focussed on Latvia; however, the data on the other EU countries or the EU can be integrated if demanded. Annual data provided by the Central Statistical Bureau (CSB) of Latvia (Central Statistical Bureau of Latvia, 2018) are used in the research.

1. Literature review

The concept of competitiveness and understanding of this concept have gradually changed. In the late 1990s, the researches stressed the dynamic component of competitiveness. For example, Swedish researchers argued that the changes in the international economy have gradually shifted the basis of industrial competitiveness from static price competition towards dynamic improvement (Maskell & Malmberg, 1999). These authors also use an additional concept - sustainable competitiveness, and they argue that it requires the ongoing replacement of decrepit resources (Maskell & Malmberg, 1999). Nowadays, majority of authors accept that competitiveness is dynamic and competitiveness should be analysed and compared in different countries and different time periods as competitiveness indirectly demands comparison. Something can be more competitive only if compared to something else.

But it should be stressed that if the competitiveness cannot be measured, it cannot be improved (Bruneckiene, Guzavicius, & Cincikaite, 2010). Hence, the evaluation of competitiveness is so important for many involved agents in the economy.

Rural development and developed regions within the EU are some of the EU targets hence Cohesion policy is an important part of the EU economic policies. As the regions eligible for support from Cohesion policy have been defined at NUTS 2 level, the Cohesion report (European Commission, 2017) representing the policy performance has so far mainly been prepared at NUTS 2 level.

The geographical map of the EU Structural Funds (ERDF and ESF) eligibility 2014–2020 illustrates the regions according to NUTS 2 level and corresponding level of development (as indicator is applied a gross domestic product per inhabitant (as % of EU-27 average) (European Commission, 2017)). All the regions for the policy are subdivided by the European Commission (European Commission, 2017) into 3 major groups: less developed regions, transition regions and more developed regions.

Hence it is significant to review the current studies in the field. The review of latest studies in competitiveness in the EU countries shows that the concept of competitiveness is widely applied and the concept is being extended and new meanings and features included. European Commission (European Commission, 2017) evaluates regional competitiveness by Regional Competitiveness Index (RCI) that is designed to capture the different dimensions of competitiveness for NUTS 2 regions summarized in eleven pillars (Annoni & Dijkstra, 2010). European Commission argues that RCI is the first measure to provide an EU wide perspective on this (European Commission, 2017). But, for example, the urban performance evaluation includes urban competitiveness, that is linked to concept of smart cities (Caragliu, Del Bo, & Nijkamp, 2011). Urban competitiveness in Lithuania is measured and evaluated by index - urban competitiveness index (Bruneckiene, Guzavicius, & Cincikaite, 2010).

Competitiveness is also analysed in the context of the EU funding. The Lithuanian researchers argue that change in EU funding was found to have statistically significant impact on competitiveness level of certain industries (tourism and agriculture sectors) (Balzaraviciene & Pilinkiene, 2012). It was also determined that EU structural funds have significant influence on infrastructure and macroeconomic, scientific and social environment (Remeikiene & Gaspreniene, 2016). Research in the Czech Republic showed that only European Social Fund has helped to increase productivity (Martinez & Potluka, 2015). The authors that researched the export competitiveness and productivity in Lithuania, argue that the export competitiveness is a derivative of main factors' productivities (Travkina & Tvaronaviciene, 2011). Another report on the EU funds concludes that these have helped to enhance competitiveness of regions in Romania and Bulgaria (Gabriela & Delia, 2015).

Regarding the methods, the competitiveness of Polish companies in global market and the perspective of Poland joining the euro zone are examined on the basis of the analysed sample of companies (Dzikowska, Gorynia, Jankowska, & Pietrzykowski, 2014). Research of the EU-wide competitiveness issues uses panel data regression and reveals that the influence of the EU Structural and Cohesion funds on competitiveness is positive in the long run (Tijanic & Obadic, 2015).

Literature on export competitiveness is researched in several EU countries (including Latvia) and applied methods, scale, geographical coverage vary. Export competitiveness of the Baltic States is measured by Composite Index (Bruneckiene & Paltanaviciene, 2012). At the same time, some authors analyse export competitiveness of certain industry or group of products (as (Bojniec & Ferto, 2014) analysed the export competitiveness of the EU of dairy products in global markets using revealed comparative advantage (RCA) index). Some authors examine certain sector of the national economy and its impact on the competitiveness of the country or region (as (Maciulis, Vasiliauskas, & Jakubauskas, 2009) researched the impact of transport on national economy (Lithuania) and its competitiveness, applying the selected indicators: the share of transport in the national (Lithuania's) GDP (%) and the ratio of the export of transport services to national GDP (%)). In order to identify factors determining industrial competitiveness, the author (Kleynhans, 2016) has used the data from the Manufacturing Firm Survey of the World Bank and applied regressions and panel data analysis.

A huge variety of methods and approaches are used to analyse and evaluate the competitiveness that include both complex and simple methods. Competitiveness is a complex concept and hence we can conclude that the choice of method applied is strongly determined by the objectives and aim, size and other specifics of the research.

2. Methods and methodology

The authors have elaborated methodology, which includes the steps:

- analyse industries on national scale;
- analyse regional structure;
- select and analyse the selected industries that are allocated in regions;
- evaluate and conclude on competitiveness of selected industries.

Set of indicators selected and applied in the research are:

- value added by industries (NACE Rev. 2) – sectoral structure; dynamics;

- value added by industries (NACE Rev. 2) and by planning regions (NUTS 3) – regional sectoral structure; dynamics;
- productivity by industries (NACE Rev. 2) (see Formulae 1) – comparison and dynamics of selected industries;
- competitiveness of industries in open market as ratio of exports to imports by industries (NACE Rev. 2) (see Formulae 2) – comparison and dynamics of selected industries.

The authors propose to analyse productivity as a ratio of the value added to output (Formulae 1). This indicator $r_{prod,i,t}$ illustrates the share of added value in output value; the indicator $r_{prod,i,t}$ by its sense is direct cost coefficient in context of input-output analysis. The computed values of $r_{prod,i,t}$ are comparable in one time period (one industry to other industries; national level or international comparisons (static analysis)) and also in dynamics comparison (one industry in certain time period (comparable-dynamic analysis)).

$$r_{prod,i,t} = \frac{va_{i,t}}{out_{i,t}} \times 100\% \quad (1)$$

Where:

$r_{i,t}$ - ratio of value added to output by industries i (NACE Rev. 2) in time period t ;

$va_{i,t}$ – value added of industries i in time period t (at current prices; data source CSB);

$out_{i,t}$ - output of industries i in time period t (at current prices; data source CSB).

Formulae 2 is used to compute the competitiveness of industries in open market. The computed values of $r_{ci,t}$ (like $r_{prod,i,t}$ values) are comparable in one time period (both national and international comparison (static analysis)) and also in dynamics comparison (comparable-dynamic analysis).

$$r_{ci,t} = \frac{exp_{i,t}}{imp_{i,t}} \times 100\% \quad (2)$$

Where:

$r_{ci,t}$ - ratio of exports to imports by industries i (NACE Rev. 2) in time period t ;

$exp_{i,t}$ – exports of goods of industries i in time period t (at current prices; data source CSB);

$imp_{i,t}$ - imports of goods of industries i in time period t (at current prices; data source CSB).

The content of set of indicators listed above is determined strongly by availability of detailed statistical data. Unfortunately, in respect to analysis and modelling of regional productivity and competitiveness of industries, many significant aspects and dimensions are not covered by CSB data. Due to these limitations, the research is strongly based on national accounts data.

3. Analysis of statistical data and discussion

The economy of Latvia grows and the total gross value added accounted for 21.7 billion euros in 2016. The set of leading industries in respect to the share in the economy is stable (according to NACE Rev. 2) - wholesale and retail trade (3.2 billion euros or 14.7 % of total value added in 2016); real estate activities (2.7 billion euros or 12.4 %); manufacturing (2.7 billion euros or 12.3 %); transportation and storage (1.9 billion euros or 8.7 %); public administration and defence, compulsory social security (1.7 billion euros or 7.6 %). These five above mentioned industries formed 55.7 % of total economy (in money terms – they created value added of 12.1 billion euros). Then follows the construction with its growing endowment and stable share in the economy (1.1 billion euros or 5.3 %).

¹Corresponding author. Phone: +371 26179993. E-mail: astra.auzina-emsina@rtu.lv

²Corresponding author. Phone: +371 26521370. E-mail: velga.ozolina@rtu.lv

However, the statistical analysis taking into account regional allocation reveals that the leading industries are mainly located in Riga region (Table 1), that accounted for 54 % of total value added in 2015 (it should be outlined that in CSB data base there are no sectoral data of total value added in cities (except Riga) by kind of economic activity and CSB (Central Statistical Bureau of Latvia, 2018) admits that the data are not available or are too uncertain for presentation). The industries that are allocated more evenly are primary and secondary sectors - agriculture, mining, and manufacturing. Services or tertiary sector's economic activities (with some exceptions regarding public services (as education, human health and social work activities etc.) are dominantly located in cities and by large extent in Riga region. The authors argue that the service industries that are directly linked to population in regions and primary and secondary industries due to the allocation of resources and production traditions are allocated in regions more evenly.

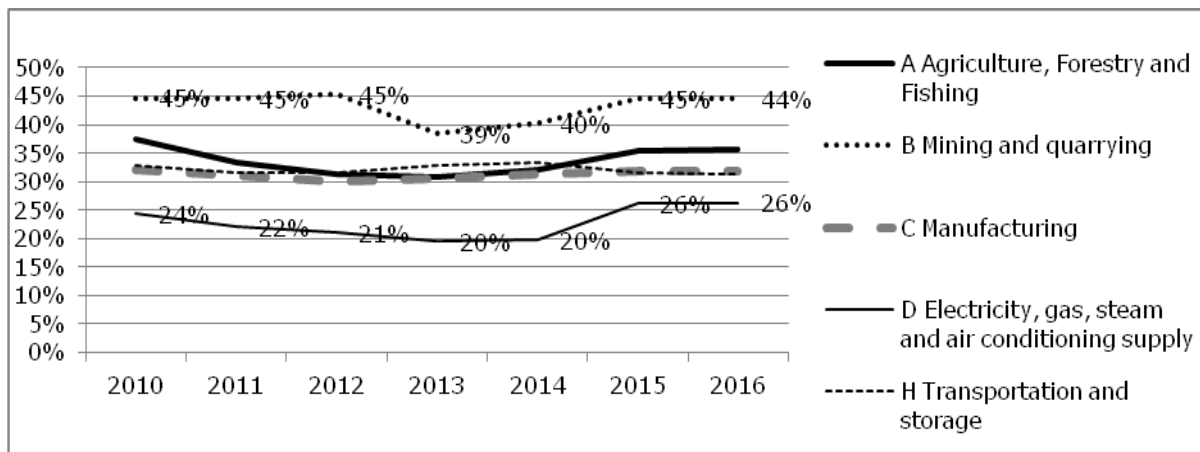
Table 1

**Share of total value added in statistical regions by kind of economic activity
(NACE Rev. 2) in Latvia in 2015 (%)**

Industry or economic activity (NACE Rev. 2 code)	Riga region	Pieriga region	Vidzeme region	Kurzeme region	Zemgale region	Latgale region
(A) Agriculture, Forestry and Fishing	8 %	14 %	23 %	18 %	25 %	12 %
(B) Mining and quarrying	1 %	24 %	18 %	24 %	24 %	9 %
(C) Manufacturing	35 %	22 %	10 %	13 %	12 %	9 %
(D) Electricity, gas, steam and air conditioning supply	48 %	17 %	8 %	9 %	11 %	6 %
(E) Water supply, sewerage etc.	29 %	28 %	7 %	12 %	13 %	11 %
(F) Construction	59 %	13 %	6 %	9 %	7 %	5 %
(G) Wholesale and retail trade etc.	62 %	14 %	5 %	7 %	6 %	6 %
(H) Transportation and storage	51 %	18 %	2 %	14 %	5 %	10 %
(I) Accommodation and food service activities	69 %	15 %	4 %	6 %	4 %	3 %
(J) Information and communication	84 %	6 %	2 %	4 %	1 %	3 %
(K) Financial and insurance activities	85 %	6 %	2 %	3 %	2 %	2 %
(L) Real estate activities	48 %	20 %	7 %	11 %	7 %	8 %
(M) Professional, scientific and technical activities	79 %	9 %	2 %	4 %	3 %	2 %
(N) Administrative and support service activities	67 %	14 %	4 %	6 %	4 %	5 %
(O) Public administration and defence; compulsory social security	56 %	9 %	6 %	9 %	7 %	10 %
(P) Education	42 %	15 %	9 %	11 %	10 %	13 %
(Q) Human health and social work activities	54 %	10 %	7 %	10 %	8 %	10 %
(R) Arts, entertainment and recreation	56 %	16 %	6 %	9 %	7 %	7 %
(S,T) Other service activities etc.	61 %	14 %	5 %	7 %	6 %	6 %
Total	54 %	15 %	7 %	9 %	8 %	7 %

Source: authors' calculations based on CSB data

In the research, productivity of industries is evaluated by the computed ratio of value added to output. Figure 1 shows the dynamics of productivity in Latvia in 2010-2016.



Source: authors' calculations based on CSB data

Fig. 1. Ratio of value added to output by selected industries in Latvia in 2010-2016 (%)

In Latvia, the primary sector activities, such as mining, have the highest productivity amid the compared industries that is uncommon trend. On average, the ratio was 46 % in Latvia in 2016 as the service sector dominates and services mainly have higher productivity. Productivity of agriculture and manufacturing (sectors that are also located in regions and rural areas) are below the average level that leads to the situation that regions are less developed, have fewer resources, face emigration to larger cities or abroad etc.

In order to evaluate the competitiveness of industries in the global market, exports and imports of the industries are analysed (Table 2).

The evaluation results of the computed ratios of exports and imports of goods by industries give the basis to argue that the industries or economic activities that are allocated more evenly in Latvia have higher values of this ratio. Moreover, relatively higher values are in those industries, which are more traditional in Latvia like forestry and logging, fishing and agriculture and other mining and quarrying. Values of ratio of exports to imports are comparatively high also in manufacturing of pharmaceutical products, which is a high-tech industry mainly located in Riga and Riga region. These industries can be considered as highly competitive.

For other industries, two options are possible. There are industries like crop and animal production and manufacturing of food, which relies heavily on domestic demand. Some others like manufacture of paper products, manufacture of computer etc. products and manufacture of motor vehicles use imported products for export as well, thus showing competitiveness in transit field.

Significant decrease of this ratio shows that the local resources are becoming scarce and need to be imported. Increase of this ratio might indicate that a particular industry is becoming more competitive globally, or is able to substitute imports due to larger global competitiveness in domestic market or both.

Table 2

Ratio of exports to imports in agriculture, mining and manufacturing industries (NACE Rev. 2) in Latvia in 2010-2016

NACE code	Industry	2010	2011	2012	2013	2014	2015	2016
TOTAL	Total	79 %	78 %	79 %	79 %	81 %	83 %	85 %
A01	Crop and animal production, hunting and related service activities	111 %	81 %	120 %	135 %	131 %	151 %	146 %
A02	Forestry and logging	1533 %	1175 %	955 %	1448 %	1276 %	688 %	556 %
A03	Fishing and aquaculture	579 %	306 %	253 %	348 %	387 %	409 %	698 %
B08	Other mining and quarrying	497 %	367 %	382 %	391 %	401 %	436 %	501 %
C10	Manufacture of food products	144 %	143 %	137 %	157 %	155 %	142 %	136 %
C11	Manufacture of beverages	87 %	73 %	71 %	105 %	89 %	86 %	82 %
C13	Manufacture of textiles	166 %	160 %	160 %	165 %	167 %	151 %	152 %
C14	Manufacture of wearing apparel	147 %	175 %	163 %	161 %	167 %	174 %	180 %
C15	Manufacture of leather and related products	229 %	192 %	200 %	199 %	167 %	180 %	154 %
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	702 %	597 %	576 %	522 %	455 %	474 %	456 %
C17	Manufacture of paper and paper products	120 %	115 %	129 %	101 %	98 %	116 %	108 %
C18	Printing and reproduction of recorded media	173 %	205 %	213 %	217 %	229 %	172 %	238 %
C20	Manufacture of chemicals and chemical products	127 %	120 %	110 %	161 %	164 %	173 %	213 %
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	683 %	455 %	482 %	400 %	411 %	379 %	453 %
C22	Manufacture of rubber and plastic products	111 %	107 %	95 %	91 %	110 %	104 %	108 %
C23	Manufacture of other non-metallic mineral products	216 %	203 %	237 %	233 %	205 %	188 %	223 %
C24	Manufacture of basic metals	172 %	134 %	188 %	280 %	130 %	115 %	148 %
C25	Manufacture of fabricated metal products, except machinery and equipment	180 %	180 %	178 %	201 %	186 %	201 %	255 %
C26	Manufacture of computer, electronic and optical products	159 %	170 %	208 %	149 %	190 %	153 %	153 %
C27	Manufacture of electrical equipment	165 %	177 %	159 %	166 %	185 %	157 %	156 %
C28	Manufacture of machinery and equipment n.e.c.	315 %	249 %	216 %	223 %	225 %	266 %	255 %
C29	Manufacture of motor vehicles, trailers and semi-trailers	180 %	186 %	193 %	218 %	243 %	206 %	235 %
C30	Manufacture of other transport equipment	113 %	83 %	136 %	264 %	127 %	121 %	505 %
C31	Manufacture of furniture	297 %	277 %	271 %	264 %	220 %	259 %	274 %
C32	Other manufacturing	183 %	227 %	217 %	301 %	274 %	303 %	245 %
C33	Repair and installation of machinery and equipment	36 %	28 %	39 %	41 %	64 %	26 %	35 %

Source: authors' calculations based on CSB data

Conclusions and recommendations

- 1) The set hypothesis is approved that competitiveness of industries in regions and global market is inhomogeneous and the average national level indicators do not disclose the regional specifics.
- 2) Industries are unevenly located in the territory of Latvia and those industries that are located in other regions (not in Riga region) show lower productivity level that influences the competitiveness of the region and industries.
- 3) As Latvia is a single region in NUTS 2 classification, then the regional development and cohesion is heavily dependent on the national rather than the EU activities.
- 4) The authors strongly recommend to collect and publish more disaggregated data on economic activities in the regions by the CSB, in order to have comparable and reliable basis of data for more detailed studies (for example, value added, output, employment by industries (NACE Rev. 2 Level 2 (in 88 divisions)) in regions (at least 6 planning regions).
- 5) The authors recommend the ministries and other government institutions (including the municipalities) to monitor the economic activity in the regions, since the average or total figures of major indicators do not represent the situation in the regions.
- 6) Competitiveness of industries in global market are strongly determined by productivity, hence the authors recommend the policy makers to elaborate programmes that are aimed at potential productivity improvements in industries that are located in the regions and use the available EU funds in this financial period (2014-2020) as efficiently as possible.

Acknowledgements

The paper was supported by the National Research Program 5.2. "Economic Transformation, Smart Growth, Governance and Legal Framework for the State and Society for Sustainable Development - a New Approach to the Creation of a Sustainable Learning Community (EKOSOC-LV)"

Bibliography

1. Annoni, P., & Dijkstra, L. (2010). *EU Regional Competitiveness Index*. Luxemburg: European Commission.
2. Balzaraviciene, S., & Pilinkiene, V. (2012). Evaluation of Competitiveness of Lithuanian Economic Sectors Using Competitiveness Indices: Impact of European Union Funding. *Transformations in Business and Economics*, 11(2), 98-116.
3. Bojnec, S., & Ferto, I. (2014). Export Competitiveness Of Dairy Products On Global Markets: The Case Of The European Union Countries. *Journal of Dairy Science*, 97(10), 6151-6163.
4. Bruneckiene, J., & Paltanaviciene, D. (2012). Measurement of Export Competitiveness of the Baltic States by Composite Index. *Inzinerine Ekonomika-Engineering Economics*, 23(1), 50-62.
5. Bruneckiene, J., Guzavicius, A., & Cincikaite, R. (2010). Measurement Of Urban Competitiveness In Lithuania. *Engineering Economics*, 21(5), 493-508.
6. Caragliu, A., Del Bo, C., & Nijkamp, P. (2011). Smart Cities in Europe. *Journal of Urban Technology*, 18(2), 65-82.
7. Central Statistical Bureau of Latvia. (2018). Statistics Database. Riga: Central Statistical Bureau of Latvia. Retrieved: <http://www.csb.gov.lv/en/dati/statistics-database-30501.html>. Access: 02.02.2018.
8. Dzikowska, M., Gorynia, M., Jankowska, B., & Pietrzykowski, M. (2014). International Competitiveness Of Polish Companies And The Perspective Of Poland Joining The Euro Zone. *Society and Economy*, 36(1), 95-117.
9. European Commission. (2003). Commission Recommendation of 6 May 2003 Concerning The Definition Of Micro, Small And Medium-Sized Enterprises. European Commission.
10. European Commission. (2017). My Region, My Europe, Our Future. Seventh Report On Economic, Social And Territorial Cohesion. Brussels: European Commission.
11. Gabriela, A., & Delia, G. (2015). The Effect Of Structural Funds On Regional Competitiveness In The New EU Countries: The Case Of Romania And Bulgaria. *Annals of 'Constantin Brancusi' University of Targu-Jiu. Economy Series*, 1(1), 225-235.

¹Corresponding author. Phone: +371 26179993. E-mail: astra.auzina-emsina@rtu.lv

²Corresponding author. Phone: +371 26521370. E-mail: velga.ozolina@rtu.lv

12. Kleynhans, E. (2016). Factors Determining Industrial Competitiveness And The Role Of Spillovers. *Journal of Applied Business Research*, 32(2), 527-540.
13. Maciulis, A., Vasiliauskas, A., & Jakubauskas, G. (2009). The impact Of Transport On The Competitiveness Of National Economy. *TRANSPORT*, 24(2), 93-99.
14. Martinez, F., & Potluka, O. (2015). Does the EU Funding Increase Competitiveness of Firms by Supporting Organisational Changes? *Journal of Competitiveness*, 7(2), 23-37.
15. Maskell, P., & Malmberg, A. (1999). Localised Learning And Industrial Competitiveness. *Cambridge Journal of Economics*, 23(2), 167-185.
16. Remeikiene, R., & Gaspareniene, L. (2016). Evaluation Of The Impact Of The EU Structural Support On The Competitiveness Of Lithuanian Economics. *Central European Journal of Public Policy*, 10(1), 1-11.
17. Tijanic, L., & Obadic, A. (2015). Can We Boost The Competitiveness Of The European Union Through Reducing Regional Inequalities In Human Capital? *Engineering Economics*, 25(3), 295-305.
18. Travkina, I., & Tvaronaviciene, M. (2011). Export competitiveness And Domestic Productivity Facets: Case of Lithuania. *Journal of Business Economics and Management*, 12(1), 49-68.

KEY TRENDS AND ASPECTS INFLUENCING CHANGES INTO SPATIAL PLANNING SYSTEMS AND PRACTICES IN EUROPE

Armands Auziņš¹ Dr.oec.

¹ Institute of Civil Engineering and Real Estate Economics, FEEM, Riga Technical University

Abstract. More than a decade ago the Territorial Agenda (TA) of the EU aimed strengthening territorial cohesion and was built upon three main aims of the European Spatial Development Perspective (ESDP), thus of European planning. Since then different integrated tools for European spatial development have been proposed and instruments based on various initiatives to support spatial planning practices created. New TA under the specific objective enhanced European territorial evidence gathering through applied research and analyses. Recent comparative studies of territorial governance and spatial planning systems and practices emphasised meaningful changes, their influences and possible further continuity. Latvia, along with other Baltic States, over the past two decades has witnessed considerable changes in institutional settings of spatial planning system and planning practice as well. The aim of the study is to explore the key trends and aspects which have influenced changes into spatial planning systems and practices in Europe. The review of scientific literature as well as dynamic and comparative analysis and synthesis techniques have mainly been employed for the study. The main outcome of the research shows that reforms, economic crisis and restructuring as well as institutional arrangements, challenges of globalization and 'Europeanization' of spatial planning agendas basically influenced changes into planning systems and practices, which explains its continuation and a potential for introduction of advanced planning approaches.

Key words: spatial planning systems, practices, comparative analysis, Territorial Cohesion, Europe.

JEL code: O21, R58

Introduction

European countries over the past two decades have witnessed considerable changes in institutional settings and governing structures of spatial planning systems as well as in planning practices and even in discourses. During the evolution of these changes, several spatially relevant policies, i.e. European spatial planning (ESDP, Territorial Agenda) and regional policy (ERDF, ESF, Cohesion Fund), have been provided. The TA of the EU (TA 2007) aimed strengthening territorial cohesion and was built upon three main aims of the ESDP, thus of European spatial planning: (1) polycentric development and urban-rural partnership, (2) access to infrastructure and knowledge, (3) sustainable development and prudent management of the natural and cultural resources (European Commission, 2007). Under the European Spatial Planning Observation Network (ESPON) project, the integrated tools for European spatial development have been intended to apply (Faludi A., 2008). The paradigm of "Europeanization of spatial planning" may be seen as consequence from introduction of Territorial Agenda and European influence on planning systems. Thus, this paradigm could be perceived twofold: planning systems in Europe or Europe for planning systems. 'Europeanization', understood either as governance, institutionalization or discourse, introduced different mechanisms and modes of governance: hierarchy, bargaining and facilitated coordination (Radelli C. M., 2004). How domestic institutions assimilate new challenges driven by 'Europeanization'? Therefore, particular attention is paid to the extent to which the process of 'Europeanization' is leading to the convergence or divergence of planning systems (Reimer M. et. al., 2014). The creation of instruments for European planning is topical and based on various intergovernmental and community initiatives (Faludi A., 2008). Nevertheless, a discursive integration of European spatial planning agenda at national level can be found in ESDP arguments for an integrated way of spatial planning, regional economic development as well as environmental and cultural development. New TA (TA 2020) under the specific objective of the ESPON 2020

Cooperation Programme, "Enhanced European territorial evidence production through applied research and analyses", applied research projects to contribute to the European territorial and analytical evidence base. As territorial governance and spatial planning systems have now evolved to become one of the key components of integrated cross-sectoral development strategies and policy delivery mechanisms among ESPON member and partner states, the comparative analysis of territorial governance and spatial planning systems in Europe is being performed (ESPON EGTC 2020).

However, recent comparative research (Reimer M. et. al., 2014) delineated the coexistence of continuity and change and of convergence and divergence with regard to spatial planning practices across Europe (case studies and comparative conclusions of 12 countries) based on a systematic and methodological framework for analysing changes in planning systems and practices. Thus, a specific and context-dependent variety and disparateness of 'planning transformation' have been proposed to focus on. Therefore, it is recognised that by using proposed methodological framework, the systems and practices in all other European, i.e. in Baltic States should be studied and key trends and aspects analysed. If considering similar historical evolution of three Baltic States – Estonia, Latvia, and Lithuania, it should be necessary to develop a model of transformation design and to explain main phases and turning points when setting a time perspective by years since the restoration of independence in 1990s. Therefore, more complete study outcome due to 'path-dependent evolutions' could be designed and discussed.

If considering above described topicality and quite challenging issues, the author of the research proposed a **hypothesis** – there exist several other driving forces apart of 'Europeanization' causing changes into European spatial planning practices and discourses. The **aim** of the study resulting from the drawn hypothesis is to explore the key trends and aspects which have influenced changes into spatial planning systems and practices in selected European countries, including Latvia. The **objectives** of the study to meet the aim are: (1) to identify the key trends and aspects influencing changes into spatial planning systems and practices based on profound literature review; (2) to analyse the outcome of comparative studies by using previously developed methodological framework and established criteria; and (3) to explore the evolution of Latvian spatial planning experience and to discuss it in the light of previously made comparative studies, which presents a novelty of the research. The following **research methods** have been employed for the study: the review of scientific literature and legal instruments; the expert interview method; the dynamic and comparative analysis and synthesis techniques.

Research results and discussion

The Commission of the European Communities issued "The EU Compendium of Spatial Planning Systems and Policies" in 1997, which gave some overview about spatial planning systems and traditions of 15 European Member States as well as enabled to understand these systems in operation and identified four 'ideal types' (CEC, 1997). Considering these types, M. Reimer et. al. (2014) selected 12 countries for comparative analysis. Each one of the countries represented some of those types/traditions. Accordingly, Denmark, Finland, the Netherlands, and Poland represented a "comprehensive/integrated" planning tradition, Germany represented partly both "comprehensive/integrated" and "regional-economic" planning traditions, France represented a "regional-economic" planning tradition, Italy, Greece and Turkey represented the tradition of

"urbanism", but Flanders/Belgium and the United Kingdom represented a "land-use management" planning tradition.

Different *contexts of changes* were demonstrated in 'country chapters', which more properly emphasise those under particular circumstances: legal and institutional changes of the system, including changes in scope, planning tools and the role of actors at different levels, as well as discussions and discourses emerging from these changes (in general and Denmark), development of the planning system by considering the city as a part of metropolitan region and as best its reflection (Finland), national spatial planning at the end of an era (the Netherlands), institutional inertia and new challenges (Germany), drifting away from the "regional economic" approach/ideal type in planning (France), modernization and trajectories of innovation of the planning system (Italy), mainstream planning and the potential offered by strategic planning obscured by privatization of planning powers and services, as well as outsourcing of pro-growth planning as consequence of economic crisis (Greece), demonstration of institutional dynamics of very long period of time (after 1945) as a background for challenges for spatial structure planning (Flanders), evolution of spatial planning through three waves of reform (the UK), step-by-step evolution/mainstream (the Czech Republic), national-historical (Turkey), planning between dominant market forces and European influence (Poland). Latvia, the same as the Czech Republic and Poland, faced a transition from planned economy in post-soviet space and incremental development of market economy to effect of European spatial planning agenda till now.

Referencing to the study (Reimer M. et. al., 2014), three criteria have been set to most properly characterise key trends and aspects influencing changes into and thus transformation of spatial planning systems and practices in selected European countries and in Latvia.

1. The scope and main objectives of changes.

O. Damsgaard described decentralization and re-centralization processes, which after 2007 facilitated in the way the power and planning tasks of counties largely subdivided between municipalities and the state in Denmark (Reimer M. et. al., 2014, pp. 21-41). Early signs of re-centralization were recently seen regarding large-scale retail projects by S. Hirvonen-Kantola and R. Mantysalo. They also emphasised economic restructuring due to deindustrialisation and globalisation challenges in Finland (Reimer M. et. al., 2014, pp. 42-60). G. Erkut and E. Sezgin recognised trends towards decentralization and re-centralization at the same time, thus decentralization of planning to the local level, but in case of some tools evaluated as re-centralization in Turkey (Reimer M. et. al., 2014, pp. 236-254). W. Zonneveld and D. Evers showed clearly how the economic development has become the main priority in Dutch spatial planning (Reimer M. et. al., 2014, pp. 64-82). However, the land policy towards reducing the increase in sealed surfaces, e.g. open space for settlement and transport purposes, was designed in Germany and characterised by H. H. Blotevogel et.al. (Reimer M. et. al., 2014, pp. 83-108). Moreover, modern territorial governance there appeared through combining both hard and soft modes of control of spatial planning and development. Thus, it was declared: "soft forms of communication and consensus building as much as possible, hard forms of binding goals and hierarchical control as much as necessary" in Germany. It may be generally concluded that dimensions and directions of changes are not linear and show multiple trajectories in all countries. However, A. Geppert emphasised constituted decentralization in 2003, as well as introduction of strategic dimension in statutory planning, however pointed to the need for more dynamic and process-oriented planning

methods in France (Reimer M. et. al., 2014, pp. 109-126). P. Getimis and G. Giannakourou argued for the 'privatization' of public functions/powers of planning, which consequently enabled a pro-growth planning, and so more flexible and market-oriented types of planning during economic crisis 2010-2012 in Greece (Reimer M. et. al., 2014, pp. 149-168). P. Van den Broeck et.al. pointed to shifting towards market- and property-oriented policies after 1999 and need for urban restructuring and instruments of project-oriented urban design in Flanders (Reimer M. et. al., 2014, pp. 169-188). V. Nadin and D. Stead identified the attempt to change the culture of planning from primarily land-use regulation to embrace a more strategic approach in the UK (Reimer M. et. al., 2014, pp. 189-214). K. Maier argued that the priorities in planning changed from control spatial allocation of investments till enforcement of public infrastructure projects and grounding development in the Czech Republic (Reimer M. et. al., 2014, pp. 215-235). G. Cotella described progressively reformed territorial governance activities and indicated promotion of neoliberal economic approach as prerequisite for enabling foreign investments in Poland (Reimer M. et. al., 2014, pp. 255-277). Likewise as in the case of Poland, also in Latvia were progressively reformed territorial governance activities through subsequent legal amendments and changes in planning system. Furthermore, neoliberal economic approach was fostered for enabling to plan demand-driven territories for a development.

2. The driving forces causing changes and main phases and turning points.

Different *main driving forces* influenced changes in observed European countries over past two decades and specified in 'country chapters' by the authors of the comparative study (Reimer M. et. al., 2014). These forces are: changes in administrative structure and the regions have lost their spatial planning influence in Denmark (high degree of continuity up to 2000, a reform of local government structure in 2007, changes in regional planning after 2007, impact of the financial crisis 2008-2009, less liberal directions in planning rules after 2012); institutional ambiguity, the competition between municipalities and sustainable development agenda in Finland (lack of planning cooperation in urban regions, deep economic recession of the early 1990s, intensified migration of unemployment, competition for investments, sustainable development principle in legislation); economic development as main priority of spatial planning in the Netherlands (institutional environment of national spatial planning has transformed fundamentally since the early 1990s, regional economic policy has become as the main spatial policy trust, Spatial Planning Act 2008 stimulated proactive planning and urban growth); experimental and successful combination of formal and informal planning modes to deal with significant challenges in Germany (Concepts and Strategies for Spatial Development in Germany 2006, the structural weakness of the traditional planning system makes informal planning processes seem particularly attractive, experimental forms of planning activity are being tested, general trend towards the municipalisation of regional planning, "regional governance" as new pattern of control, European integration and globalisation are leading to intensified locational competition); deep transformations of the institutional settings and intensive sequence of large reforms in France (transformations and reforms 1995-2010, social diversity and inclusion initiative at municipal level since 2000, knowledge economy from European discourse, economic crisis in 2008 activated a support for economic sectors, globalisation and international competitiveness); administrative reform and trend towards a reform of planning system in Italy (subsidiarity-oriented administrative reform 1997-1999, the consequent regionalisation of planning competences, natural emergencies

transformed into disasters, deliberative emergencies, e.g. 'housing emergency'); strategic planning approach caused EU discourse and changed with economic crisis after 2010 in Greece (uncontrolled urban sprawl, illegal possession and developments, pollution, lack of public space degradation, land-use conflicts, environmental problems 1990s and 2000s, EU pressure, EU financed programs and EC initiatives); the political changes caused changes in planning system in Flanders (predominance of the planning permit system and the rise of urban design before 1991, political change in 1991, spatial structure planning on the political agenda, fragmentation and bureaucratisation of structure planning after 1999); three waves of reform in the UK (plan-led planning approach in the 1990s, environmental protection and sustainability agenda in the 2000s, accent on localism, neighbourhood planning from 2010); administrative reform and EU accession process in Turkey (reform, devolution, privatization, neoliberal political agenda, globalization, Marmara earthquake and Helsinki Summit in 1999, promotion of EU pre-accession funds and investment after 2000); transition to and development of market economy and 'Europeanization' in the Czech Republic (territorial disparities as side effects of transformation and privatisation, sub-urbanisation and urban sprawl increased alongside with liberalism, fragmentation of landscape, pre-accession arrangements, an increasing influence of globalisation and economic crisis), in Poland (administrative reform in 1999, increasing influence of foreign investors, re-institutionalised planning framework in 2003, growing influence of EU, pre-accession period with financial measures, 'Europeanization' of spatial planning), in Latvia (land reform since 1990, gradual development of market economy and increasing influence of foreign investors 1994-2004, administrative-territorial reform and economic crisis 2008-2009, 'Europeanization' of spatial planning, incremental urban development, improved planning practice after 2011).

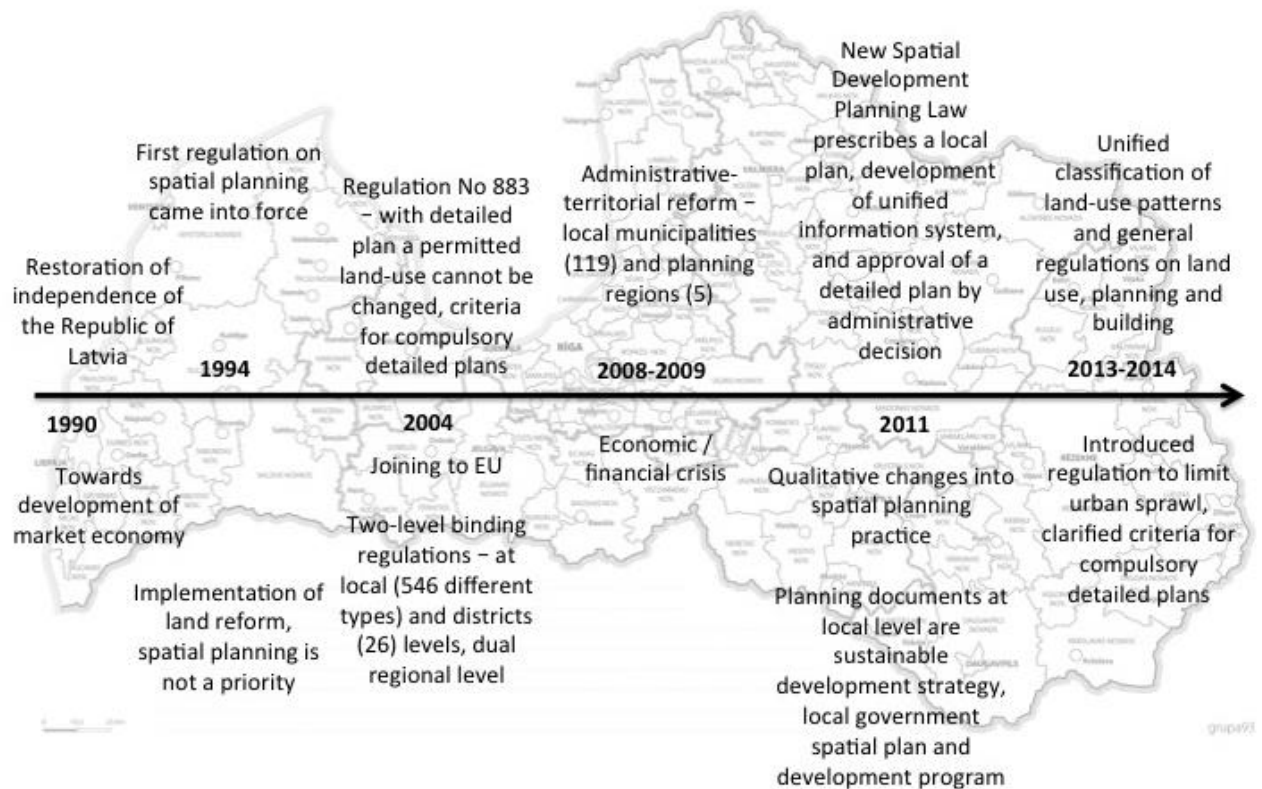
3. Policy, planning styles and tools.

Referencing to the comparative study (Reimer M. et. al., 2014) and, in particular, to the 'country chapters' accomplished by the authors, who presented specific cases of the study, the key trends and aspects of various policies, spatial planning styles and tools were explored. *In Denmark*, the planning system has evolved from a traditional, top-down coordinated land-use system to a bottom-up oriented system. Today, the municipal level is the most important, however, the system has become more fragmented and heterogeneous (growing variations between municipalities). The economic, social and political context has changed dramatically. From 2000 onwards the concept of municipal planning strategies was introduced, local spatial plans and detailed plans carried out for development. The role of new regional spatial plans is rather to function as a vision and inspiration for regional development. National planning developed due to two different trajectories – very traditional physical function mode and partnership direction and further regional development. *In Finland*, the spatial planning system is a normative and multilevel system based on land-use planning. Hierarchical system exists, in which general planning ideally guides detailed planning and aims to produce legally binding plans and enable development and implementation. National planning has been reformed since 1990s. Decentralization gave substantially more power to the municipalities in decision-making regarding land-use planning; however, actual planning practice seldom conforms to the formal planning hierarchy. Landowner rights (a basic building right) are exceptionally well protected by the law. National land-use guidelines are advisory, regional plans binding, master plans are optional, but detailed plans are binding. *In the Netherlands*, after 1990s almost perfect example of a comprehensive integrated

approach was gradually replaced by a kind of regional economic approach at the national level. Provinces and municipalities are given responsibility for urbanization. Planning focuses on the economically most competitive parts of the country. Different planning cultures even at the provincial and municipal levels exist. There is no clear-cut hierarchy defined by a binding national plan, as well as lower levels of government re-interpret the plans and policies of higher levels of government. Consultations and negotiations are the key to the planning process, and strongly recall the Dutch tradition of 'polderen'. Local land-use plans are legally binding. The combination of spatial planning and economic policy focuses on strengthening the competitiveness of the country that has been the predominant goal of spatial policy. *In Germany*, a decentralized, multi-level system exists, which is rendered very complex by the federal structure of the country. Hierarchically structured system influenced by three principles: subsidiarity, municipal planning autonomy, and mutual feedback from other planning levels. Many conflicts can be solved with informal types of inter-municipal cooperation. Spatial planning has become more strategic, and at the same time, more communicative and networked. Significant informal planning instruments applied also for the implementation of formal planning. Nowadays, both hard and soft modes of control are combined with one another as modern territorial governance. Legally binding plans and supplementary tools for the safeguarding and implementing of spatial planning norms often amended, but continue to exist. Planning is not become ineffective, but its traditional tools are insufficiently suitable. A regional land use plan has been introduced for distinguished cities. *In France*, the spatial planning system is hybrid, somewhere between the regional economic and comprehensive integrated approaches. Shortcomings of the system related to the unclear governance patterns. Today, soft granted spaces cover almost all territory of the country. Public participation is rather low in the culture, as well as transparency of public decisions, the use of public funds, and the collaboration within PPP is rather big challenge. State administration played a dominant role at the local level in statutory planning, land-use management and implementation of large projects. However, drifting away from this approach can be seen in vertical and horizontal cooperation, policy integration, multi-actor and multi-level cooperation increased, better coherence of planning documents can be identified. Accordingly, new requirements have been addressed to planners and traditional planning tools become more strategic and soft spatial planning entered into planning practice. *In Italy*, the concept of planning as a public function of local administration exists. The introduction of more flexible instruments and of shared decision-making processes based on the direct involvement of private stakeholders may be seen as innovation. The shift from "urban planning" to "spatial planning" concept as well as growing awareness of strategic spatial planning can be highlighted. Cross-border areas as territorial platforms for implementation of territorial cooperation strategies have been determined. Complex urban programs are developed, as well as experimental applications of strategic planning methodology practiced and altogether facilitated horizontal cooperation. Planning system operates in which a master plan has both a structural level and an operational level, including land-use regulation. *In Greece*, high degree of centrality of the planning system, hierarchical, formal and legalistic apparatus of spatial regulation exist. Rigid regulations implemented, but reality does not necessarily comply with them. Control-oriented policy style with central, regional and local levels of territorial administration is recognised. However, a parallel shift towards strategic spatial planning and more participatory approach took place in the late 1990s. Planning agenda already since 1990s and in 2000s emphasised the role of strategic spatial planning in promoting sustainability along with the need to accelerate big

infrastructure projects. Master planning for all large urban centres and integrated urban plans for urban areas are carried out. However, planning practice has been unable to generate trust between state, society and the market as well as to guide planning procedures in a more consensual direction. *In Flanders/Belgium*, different groups have re-produced different, sometimes competing, planning systems, e.g. the planning permit system, spatial structure planning, land-use planning, infrastructure planning, project planning, environmental planning. Flemish structure planning and land-use planning have been reoriented towards the protection of private property. Spatial planning system historically evolved from land-use planning to spatial structure planning and back. Changes into 2000s favoured the further development of the gentrification and project-oriented urbanistic approach, thus spatial structure plans changed in order to increase local economic development possibilities. *In the UK*, the Anglo-Saxon neoliberal social model related to the collection of shared values in a society operates. Liberal stream of a society with a strong emphasis on individual responsibility and long history of PPP exist. Land-use regulation feature has been dominant. Planning changed from plan-led system in the early 1990s, to spatial planning approach late 1990s, and neighbourhood planning from 2010. Comprehensive regulation of land-use and development has been introduced. Local development plans must be in conformity with national policies. Plans are not legally binding nor are they detailed in the form of zoning plans, but use more performance criteria. System employs legally binding zoning plans. Value capture duties associated with approvals to develop have been introduced and locally negotiated agreements have been widely used for recoupling betterment. The profession of planner focuses on negotiations much. *In the Czech Republic*, the strong initial position of communities existed and spatial planning was responsibility of local self-governments since 1990. Planning at municipal level was quite fragmented and it was transferred to regional administrations in 2003. EU standards were adjusted and, currently, the planning system is a conglomeration of different approaches: urbanism, land-use management, and comprehensive planning at the regional and national levels; however, regional policy inspired from regional economics. Planning practice becomes more conservative as it remains based on 'values-free' role (executive arm) of a planner. Planning instruments are clearly defined, updated and well coordinated. The upper tiers being binding for lower tiers of plans. Development-oriented planning practice dominates. However, the planning values are analysed and required for local plans. *In Turkey*, planning practices are piecemeal and weak coordination between authorities exists in spite of centralised coordination since 2011. Trends towards decentralization and re-centralization at the same time have been identified. The planning system is trying to find ways to cope with new problems and challenges. Privatisation and related project-based planning activities are proceeded. A hierarchical, statutory planning system is responsible for land-use planning and development control. Regional plans produced by established agency and environmental plans produced by regional or governmental administrations, but development plans and implementation plans produced by municipalities. Regional plans are not binding and are more oriented towards economic development. New law on "Urbanization and Planning" issued for coordinating and harmonising the planning system. The way towards strategic spatial planning approach and communicative planning has been taken. *In Poland*, neoliberal macro-economic approach called for a revival of regional policy and the reintroduction of spatial planning at the national level. However, the fracture between national and regional strategies existed as well as a strong fracture still persists between national priorities/European discourses and local planning and development practices. Weak civic sector and limited community

participation in planning that powers private investors. Despite of reforms and institutional changes, a strong limitation of municipal planning activities exists. Planning merely strategic than prescriptive and regulative. Cities practice entrepreneurial approach to spatial development. "Spatial and Territorial Development Act" (2003) introduced the responsibility of regional self-government over development strategy and development plan; however a local spatial development plan has binding regulations on the territory.



Source: author's design based on outcome of empirical research

Fig. 1. The evolution of spatial planning in Latvia

Inspired by profoundly conducted comparative study of Reimer M. et. al. (2014), the key trends and aspects of Latvian policies, spatial planning styles and tools have been explored and in more detailed way are discussed by author here. **In Latvia**, initially (since 1990), the priority was given to implementation of land reform, which delayed establishment of first institutional settings (in 1994) for spatial planning. Spatial planning system and practice developed gradually with significant changes in institutional settings in 2004 and 2011. "Spatial Development Planning Law" (2011) determined new institutional settings for spatial planning agenda and aimed qualitative changes into spatial planning practice. Since then the shift towards strategic spatial planning approach can be argued, as all three planning levels (national, regional and local) have strategies. Since administrative-territorial reform (2009) a physical planning with legally binding parts of local governmental plan has been practiced. The planning style can be characterised as decentralized, integrated and comprehensive spatial planning with a tendency of centralization for recognising the priorities of national and regional scales. Weak cooperation among stakeholders, public activity and participation increases slowly. The author agrees with the arguments provided by N. Adams, that Baltic States reflect a 'culture of pragmatism' in spatial development planning (Adams N. et. al., 2014). Meanwhile, the qualitative improvement of planning practice can be seen since 2013, thus differences into design of local development plans among municipalities are limited and

application of GIS solutions for planning are promoted. Statutory planning exists only at local/municipal level, thus local government spatial plans (comprehensive plans), local plans and detailed plans are elaborated. Additionally, the planning documents at local level are concerned with a sustainable development strategy and development program. National and regional levels have guiding development strategies. Figure 1 shows the evolution of spatial planning system including main phases and turning points since 1990.

Conclusions, proposals, recommendations

- 1) Planning functions changed from the blueprint master planning early 1990s (e.g. general planning in Latvia), to regulative, strategic, and informative functions that is becoming an important complement to the legal power of statutory plans as well as the indicative importance of development strategies and informal planning approaches. Globalization and international competition foster neoliberal approaches-oriented towards territorial competitiveness. The scope of planning has broadened from physical planning to institutional design and the methods have evolved from quite static (e.g. land-use zoning) to dynamic, process-oriented. The planning systems are heterogeneous, some systems shifted from CEC 'ideal types', and practices developed differently.
- 2) Reforms, economic crisis and restructuring as well as institutional arrangements, challenges of globalization and 'Europeanization' of spatial planning agendas basically influenced changes into planning systems and practices, which explains its continuation and a potential for introduction of advanced planning approaches. Financial/economic crisis influenced all planning systems and practices, but mostly in relation to implementation processes at local land management level. It is emphasised and reflected by country cases (Latvia, Greece, France, Denmark). Accordingly, the proposed hypothesis has been tested and it confirmed, as there exist several other driving forces apart of 'Europeanization' causing changes into European spatial planning practices and discourses.
- 3) It may be generally concluded that dimensions and directions of changes are not linear and show multiple trajectories in all observed countries. The principle of sustainable development exists in every planning system, but it differently (in distinguished contexts) appears in planning practice.
- 4) The introduction of more strategic planning practice has been initiated. Further challenges for planning discourse are related to rural-urban linkage, urban settlements and its agglomerative areas, demographic change and migration. Therefore, some initiatives towards informal (complementary) planning mode and related tools could be of great significance. The project-oriented approach shows some experiences in planning as a bundle of instruments.
- 5) If considering the evolution, changes and continuity of spatial planning systems and practices in observed European countries, it is concluded, that Latvian spatial development planning approach, in general, has been developed as a comprehensive integrated and land-use-oriented, which is more similar with such Nordic countries as Denmark and Sweden.

Acknowledgement

This work has been supported by the European Regional Development Fund within the Activity 1.1.1.2 "Post-doctoral Research Aid" of the Specific Aid Objective 1.1.1 "To increase the research and innovative capacity of scientific institutions of Latvia and the ability to attract external

financing, investing in human resources and infrastructure" of the Operational Programme "Growth and Employment" No. 1.1.1.2/VIAA/1/16/161.

Bibliography

1. Adams, N., Cotella, G., Nunes, R. (2014). Engagement of Territorial Knowledge Communities with European Spatial Planning and the Territorial Cohesion Debate: A Baltic Perspective. *European Planning Studies*, Volume 22, Issue 4, pp. 712–734. Retrieved: <http://dx.doi.org/10.1080/09654313.2013.772735>. Accessed: 11.01.2018.
2. CEC – Commission of the European Communities. (1997). *The EU Compendium of Spatial Planning Systems and Policies*. Luxembourg: Office for Official Publications of the European Communities. p. 192. Retrieved: <https://publications.europa.eu/lv/publication-detail/-/publication/059fcedf-d453-4d0d-af36-6f7126698556>. Accessed: 09.11.2017.
3. ESPON EGTC 2020. Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe. Retrieved: <https://www.espon.eu/programme/projects/espon-2020/applied-research/comparative-analysis-territorial-governance-and>. Accessed: 09.11.2017.
4. European Commission. (2007). Territorial Agenda of the European Union. Towards More Competitive and Sustainable Europe of Diverse Regions. Leipzig. Retrieved: http://ec.europa.eu/regional_policy/sources/policy/what/territorial-cohesion/territorial_agenda_leipzig2007.pdf. Access: 19.12.2017.
5. Faludi, A. (2008). *European Spatial Research and Planning*. Lincoln Institute of Land Policy, p. 304.
6. Radelli, C. M. (2004). Europeanization: solution or problem? *European Integration Online Papers*, 8 (16). Retrieved: <http://eiop.or.at/eiop/texte/2004-016a.htm>. Access: 19.12.2017.
7. Reimer, M., Getimis, P., Blotevogel, H. (Eds.) (2014). Spatial Planning Systems and Practices in Europe: A Comparative Perspective on Continuity and Changes. Routledge, p. 336.
8. Spatial Development Planning Law (2011). Retrieved: <http://likumi.lv/doc.php?id=238807>

THE APPLICATION OF THE DYNAMIC CLASSIFICATIONS IN ORDER TO EVALUATE THE CHANGES OF THE EUROPEAN UNION'S SUSTAINABLE DEVELOPMENT

Iwona Bak¹, Associate Professor; Katarzyna Cheba², PhD
^{1, 2} West Pomeranian University of Technology in Szczecin

Abstract. The main purpose of the paper is to analyse the changes over time in the area of sustainable development of the EU countries. To estimate these changes, the taxonomic measure of development based on the median Weber vector was used. The analyses presented in the paper utilize information on the indicators elaborated to monitor the implementation of the objectives of the EU Sustainable Development Strategy published by Eurostat from the year 2008 to 2014. As a result, the classification and the typological groups of EU countries with similar changes over time were presented. The value added of the research presented in the paper is the analyses of changes over time in the area of sustainable development of EU countries divided into two groups: the so-called old EU-15 countries and the countries which accessed the EU after 2004. Taking into account the influence of time into the considered changes, it may be possible, thanks to using relative compound annual growth rate, to point the countries in which an improvement in the area of sustainable development, countries with a constant level and those for which the deterioration of the situation could be observed.

Key words: sustainable development, median Weber vector, dynamic classification.

JEL code: C38, P11, P36

Introduction

The concept of sustainable development, which was first formulated explicitly during the Third UNEP Program in 1975 as "(...) such a course of inevitable and desirable economic development that would not materially and irreversibly affect the human environment and would not lead to the degradation of the biosphere and would not undermine the laws of nature, economics and culture"(UN, 1975), has since the beginning enjoyed considerable interest among researchers from various fields of science. The inclusion of economic issues in this definition has become the basis for formulating a broader concept of sustainable development. In the Brundtland Briefing Report of the World Commission on Environment and Development UN in 1987, sustainable development was defined as "sustainable development to meet current needs without the risk that future generations will not be able to meet their needs" (WCED, 1987). Over the years, sustainable development has been the subject of many analyses and studies. Zhu and Hua (2016) identified as many as 59 926 records (from 1987 to 2015) in the Web of Science on research into various areas of sustainability. A total of 149 different research areas were identified from 49 countries. A particular increase in the number of publications in this area concerns the last 10 years. Between 2012-2015, more than 6 thousand publications on various areas of sustainable development appeared (Zhu and Hua, 2016). So much interest in this subject proves the growing importance of sustainable development in different areas of human life. In spite of the existence of discussions on the interpretation of sustainability (Brown et al., 1987; Shearman, 1990; Redclift, 1992; Goodland, 1995; Piontek, 2002; Hopwood, Mellor and O'Brien, 2005), the concept of sustainable development had acquired a global cultural and social dimension. Much of the published material touches the issue of measuring sustainability (Borys, 2002, 2011; Dovers and Handmer, 2009). In this case, besides attempts to identify indicators that measure different aspects and areas of sustainable development, research is also needed to show how the results achieved in this area have changed over time. Studies of this kind are also important for socio-economic and political structures such as the European Union, which has monitored the development of individual countries in this area for years based on an extensive base of sustainable development indicators.

¹Corresponding author. E-mail address: iwona.bak@zut.edu.pl

²Corresponding author. E-mail address: katarzyna.cheba@zut.edu.pl

References to the concept of sustainable development can be found in all EU strategic documents as well as in the studies compiled at the level of a particular EU Member State. An important area of research at all levels of this measurement (EU dimension, national, regional or local dimension) is anticipating the direction of EU development in this area.

The main purpose of the paper is to analyse the changes over time in the area of sustainable development of the EU countries and to divide EU countries into typological groups with similar dynamics of a studied phenomenon. In a dynamic classification, the relative compound annual growth rate calculated on the basis of median Weber vector was applied. The study used data from the year 2008 to 2014 available in the Eurostat database. Taking into account the influence of time on the studied area it may be possible to extract the countries in which you can see an improvement in the area of sustainable development, countries with a constant level (no changes over time) and those for which there is a deterioration of the situation. The paper consists of four sections. The first section is introduction. The second section is devoted to the methodological issues of empirical studies. The third section deals with empirical results of the research. The paper is closed with conclusions.

Methodological issues of empirical studies

The study presented in the paper was implemented through four tasks.

- 1) Creating a sustainable development (SD) indicators database of the European Union.

In the paper, SD indicators presented by Eurostat from the years 2008-2014 were used. The original data base included 124 indicators describing 10 themes of the European Union sustainable development. The primary criterion for the selection of indicators for the study was their availability during the analysed period. Due to gaps in the original database, Croatia was excluded, which means that the indicators for sustainable development were analysed in the 27 EU Member States.

- 2) Selection of diagnostic features.

In the next step, diagnostic features were selected for the study. After defining and gathering data concerning the initial set of features, proper verification is usually performed against two most important criteria: variability and correlation. Taking into account the former of the above criteria, 10 diagnostic features were eliminated from the study, because the coefficients of variation calculated for them were low throughout the whole period of study (at 10 % or lower). In the next step, a parametric method proposed by Hellwig (1981) was used to select a final set of diagnostic features. It is the most commonly used method of diagnostic features selection. However, the method is not perfect: it is sensitive to outliers (or asymmetric distribution of features) and it takes into account only direct relationships of a given features with other ones, ignoring indirect relationships. Improved resistance of the method to outliers can be achieved by replacing in the first step the sum of elements in a column (or a row) of the correlation coefficient matrix by their median¹. The final set of features according to proposal of Zeliás (2000) was created by indicators whose frequency of occurrence was the highest in the whole analysed period. Finally, to this set of diagnostic features which are characterized by high spatial variability with low correlation within the selected indicators and asymmetric distribution, 20 diagnostic features were selected. The features in this set were divided into stimulants (S) and destimulants (D)² as follows:

- in the area of socio-economic development: x_{1D} – total unemployment rate (%, D),

¹ The second fault can be eliminated by means of the matrix inverse method (Nowak, 1990).

² The stimulants are features whose bigger values indicate a higher level of progress of a given phenomenon, while the destimulants are features whose smaller values signify a higher level of development (Hellwig, 1968).

¹Corresponding author. E-mail address: iwona.bak@zut.edu.pl

²Corresponding author. E-mail address: katarzyna.cheba@zut.edu.pl

- in the area of sustainable consumption and production: x_{2S} – resource productivity (Euro per kilogram, S), x_{3D} – total emission of nitrogen oxides (NO_x), (tonnes per 1 km², D),
- in the area of social inclusion: x_{4D} – people living in households with very low work intensity (%, D), x_{5D} – early leavers from education and training (%, D), x_{6S} – tertiary educational attainment by sex, age group 30-34 (%, S), x_{7D} – long-term unemployment rate (%, D), x_{8D} – relative median at-risk-of-poverty gap (%, D), x_{9D} – at most lower secondary educational attainment by age, from 25 to 64 years (%, D),
- in the area of demographic changes: x_{10D} – general government gross debt (% of GDP), x_{11S} – aggregate replacement ratio (%, S), x_{12S} – total fertility rate (number of children per woman, S),
- in the area of public health: x_{13D} – people having a long-standing illness or health problem, by income quintile (%, D), x_{14D} – proportion of population living in households considering that they suffer from noise (%, D),
- in the area climate change and energy: x_{15S} – share of renewable energy in gross final energy consumption (%, S), x_{16S} – share of renewable energy in fuel consumption of transport (%, S), x_{17S} – combined heat and power generation, % of gross electricity generation (% of gross electricity generation, S),
- in the area of sustainable transport: x_{18D} – volume of freight transport relative to GDP (%, D),
- in the area of good governance: x_{19D} – shares of environmental in total tax revenues from taxes and social contributions (%, D), x_{20S} – level of citizens' confidence in EU institutions (%, S).

To the final set of diagnostic features, the indicators represented the areas of: natural resources (collected only for selected countries by Eurostat) and global partnership (represented by a very limited number of indicators) weren't introduced.

3) Construction of taxonomic measures of development based on median Weber vector.

The linear assignment of European Union countries was conducted using the method based on the median Weber (1971) vector¹. The positional option of the linear object assignment takes a different normalization formula², compared to the classical approach, based on a quotient of the feature value deviation from the proper coordinate of the Weber median and a weighed absolute median deviation, using the Weber median (Lira et al., 2002; Mlodak et al., 2016)¹⁰:

$$z_{ij} = \frac{x_{ij} - \theta_{0j}}{1,4826 \cdot \text{m}\ddot{\text{a}}\text{d}(X_j)} \quad (1)$$

where: $\theta_0 = (\theta_{01}, \theta_{02}, \dots, \theta_{0m})$ is the Weber median, $\text{m}\ddot{\text{a}}\text{d}(X_j)$ is the absolute median deviation, in which the distance from the features to the Weber vector is measured,³ i.e.:

$\text{m}\ddot{\text{a}}\text{d}(X_j) = \text{med}_{i=1,2,\dots,n} |x_{ij} - \theta_{0j}|$ ($j=1,2,\dots,m$). The synthetic measure μ_i is calculated on the basis of

maximum values of normalized features, similarly to the Hellwig (1968) method: $\varphi_j = \max_{i=1,2,\dots,n} z_{ij}$, according to the following formula:

¹ The Weber median is a multi-dimensional generalization of the classical notion of the median. It is about vector that minimizes the sum of Euclidean distance (Euclidean distance) of the data points representing the considered objects, and therefore is somehow "in the middle" of them, but it is also immune to the presence of outliers (Weber, 1971).

² The median Weber vector was calculated on the basis of features by transforming destimulants into stimulants on the basis of the following formula: $x'_{ij} = 1/x_{ij}$, $i = 1, 2, \dots, n$; $j = 1, 2, \dots, m$.

³ The Weber median was calculated in R program: *l1median* of package: *pcaPP*.

¹⁰Corresponding author. E-mail address: iwona.bak@zut.edu.pl

²Corresponding author. E-mail address: katarzyna.cheba@zut.edu.pl

$$\mu_i = 1 - \frac{d_i}{d_-} \quad (2)$$

where: $d_- = \text{med}(\mathbf{d}) + 2.5\text{mad}(\mathbf{d})$, where $\mathbf{d} = (d_1, d_2, \dots, d_n)$ is a distance vector calculated with the formula: $d_i = \text{med}_{j=1,2,\dots,m} |z_{ij} - \varphi_j|$, $i = 1, 2, \dots, n$, φ_j – the i -th coordinate of the development pattern vector, which is constituted of the maximum values of the normalized features.

4) Dynamic classification based on the values of relative compound annual growth rate ($rCAGR$, %) estimated on the basis of taxonomic measures of development in 2008-2014.

To calculate the values of relative compound annual growth rate the following formula was used:

$$rCAGR_i = (CAGR_i - 1) * 100 \%, (i = 1, \dots, 27) \quad (3),$$

where: $CAGR$ – compound annual growth rate for i -th country calculated as follows:

$$CAGR_i = \sqrt[n-1]{\frac{\mu_{i_n}}{\mu_{i_1}}}, (i = 1, \dots, 27; n = 1, \dots, 7) \quad (4).$$

On the basis on $rCAGR_i$ the division of population of objects into three groups in the following way can be provided: a) group I: $rCAGR_i > 0$, b) group II: $rCAGR_i = 0$, c) group III: $rCAGR_i < 0$.

The first group comprises objects for which results of $rCAGR_i$ are on the over zero level, it means that the improvement in the level of development of these objects in a studied area can be observed. The second group is represented by the objects with a constant level of development, which means no significant changes in studied area. While to the third group the objects characterizing by the deterioration of the situation were classified. Groups: first and third can be also divided into two subgroups: a) subgroup I includes countries for which: $rCAGR_i > \bar{x}_{rCAGR_1}$; b) subgroup II - countries for which: $rCAGR_i \leq \bar{x}_{rCAGR_2}$, where: \bar{x}_{rCAGR_1} is the mean value in the first group, while \bar{x}_{rCAGR_2} in the third one.

Research results and discussion

Table 1 shows the results of the classification of the EU countries obtained by means of the taxonomic measure of development calculated on the basis of the sustainable development features. The results of classification were divided into two groups: a) EU Member States, belonging to the so called "old 15" and b) EU Member States, belonging to the so called "new members". This way of presentation of EU countries classification allows to analyse the differences before and after EU enlargement. The results of the research confirmed that the assignment of EU countries to typological groups does not depend on the moment of joining the EU. These observations confirmed the previous analysis of the authors (Szopik-Depczynska et al., 2017). In these studies, it was noticed that after the economic crisis of 2007-2008, the previous division of EU countries into so-called old and new EU Member States presented in many scientific papers does not correspond with the current EU situation. It means that the "new" EU Member States usually coped better with the economic slowdown. The same conclusions were formulated by the think-tanks of the Central European Policy Institute (2014).

¹Corresponding author. E-mail address: iwona.bak@zut.edu.pl

²Corresponding author. E-mail address: katarzyna.cheba@zut.edu.pl

Table 1

The results of the ranking (value, rank and *rCAGR*) in 2008-2014

Country		2008	2009	2010	2011	2012	2013	2014	rCAGR (2009-2014, %)
EU Member States, belonging to the so called "old 15"									
Austria	μ_i	0.864	0.550	0.406	0.548	0.571	0.585	0.676	4.23
	rank	8	5	13	5	6	12	5	
Belgium	μ_i	0.825	0.510	0.481	0.428	0.475	0.475	0.567	2.14
	rank	16	7	6	14	15	18	13	
Denmark	μ_i	0.894	0.595	0.570	0.508	0.532	0.457	0.586	-0.29
	rank	3	4	4	10	9	20	11	
Finland	μ_i	0.868	0.600	0.613	0.649	0.657	0.728	0.751	4.60
	rank	7	3	3	3	3	5	3	
France	μ_i	0.872	0.539	0.528	0.514	0.594	0.627	0.665	4.28
	rank	6	6	5	8	4	8	6	
Greece	μ_i	0.788	0.317	0.236	0.129	0.126	0.075	0.271	-3.07
	rank	22	22	25	27	27	27	27	
Germany	μ_i	0.773	0.337	0.290	0.347	0.430	0.486	0.529	9.46
	rank	26	20	21	21	18	17	16	
Ireland	μ_i	0.855	0.340	0.321	0.348	0.420	0.583	0.586	11.53
	rank	9	19	20	20	19	13	12	
Italy	μ_i	0.800	0.297	0.242	0.385	0.363	0.398	0.410	6.65
	rank	21	23	24	17	22	21	22	
Luxembourg	μ_i	0.899	0.765	0.706	0.774	0.759	0.822	0.902	3.35
	rank	2	1	2	1	2	2	1	
Netherlands	μ_i	0.825	0.480	0.459	0.520	0.518	0.597	0.594	4.36
	rank	17	9	8	7	13	9	9	
Portugal	μ_i	0.766	0.246	0.252	0.252	0.321	0.259	0.410	10.79
	rank	27	24	23	25	23	25	23	
Spain	μ_i	0.783	0.236	0.235	0.326	0.169	0.239	0.292	4.28
	rank	23	25	26	23	26	26	26	
Sweden	μ_i	0.938	0.699	0.764	0.757	0.817	0.853	0.832	3.55
	rank	1	2	1	2	1	1	2	
United Kingdom	μ_i	0.835	0.380	0.324	0.391	0.374	0.359	0.539	7.25
	rank	13	15	19	15	20	23	14	
EU Member States, belonging to the so called "new members"									
Bulgaria	μ_i	0.783	0.366	0.445	0.329	0.291	0.375	0.404	1.95
	rank	24	17	9	22	24	22	24	
Cyprus	μ_i	0.827	0.490	0.413	0.354	0.445	0.472	0.505	0.61
	rank	14	8	12	19	16	19	20	
Czech Republic	μ_i	0.821	0.427	0.400	0.459	0.520	0.743	0.508	3.54
	rank	18	12	16	12	12	3	18	
Estonia	μ_i	0.878	0.464	0.404	0.379	0.539	0.729	0.660	7.28
	rank	5	10	15	18	8	4	7	
Hungary	μ_i	0.814	0.372	0.405	0.390	0.434	0.498	0.523	7.03
	rank	20	16	14	16	17	16	17	
Latvia	μ_i	0.818	0.177	0.286	0.303	0.371	0.595	0.647	29.59
	rank	19	26	22	24	21	10	8	

¹Corresponding author. E-mail address: iwona.bak@zut.edu.pl

²Corresponding author. E-mail address: katarzyna.cheba@zut.edu.pl

Country		2008	2009	2010	2011	2012	2013	2014	rCAGR (2009-2014, %)
Lithuania	μ_i	0.889	0.329	0.380	0.574	0.475	0.644	0.712	16.68
	rank	4	21	18	4	14	7	4	
Malta	μ_i	0.777	0.020	0.172	0.226	0.226	0.340	0.385	80.49
	rank	25	27	27	26	25	24	25	
Poland	μ_i	0.841	0.411	0.441	0.459	0.521	0.541	0.594	7.61
	rank	12	14	10	13	11	15	10	
Romania	μ_i	0.843	0.417	0.472	0.512	0.586	0.688	0.497	3.57
	rank	11	13	7	9	5	6	21	
Slovakia	μ_i	0.827	0.356	0.399	0.493	0.531	0.573	0.507	7.30
	rank	15	18	17	11	10	14	19	
Slovenia	μ_i	0.849	0.434	0.439	0.521	0.560	0.587	0.532	4.14
	rank	10	11	11	6	7	11	15	

Source: author's calculations based on Eurostat data

The information in the Table 1 shows also that the classifications of EU countries are not stable over time. The positions occupied by individual EU countries in the rankings in many cases differed significantly. Taking into account the beginning and the end of the period considered, only five countries (Bulgaria, the Czech Republic, France, Lithuania and Malta) did not change their positions in the studied years. It should be noted that it does not mean that their positions were constant throughout the considered period. It is worth noting that only ten EU Member States noted an improvement in sustainability in 2014 compared to 2008. Over 50 % of the EU countries recorded a decline in the ranking in this period, with the highest in Romania (10 ranks down, from 10th position to 21st), Denmark (8 down, from 3rd to 11th) and Cyprus (6 down, from 14th to 20th). Between 2008 and 2014, the highest (first and second) positions were alternately occupied by Sweden and Luxembourg. The significant divergences in the rankings were noted for many countries e.g.: Bulgaria, which in 2008 was in the 24th position, two years later it improved by fifteen positions in order to fall again in 2011 to 24th position. The improvement was recorded in 10 countries, the most in Latvia (from 19th to 8th) and in Germany (from 26th to 16th). Greece, Malta and Spain were usually classified on the last positions in the rankings. In the next step dynamic classification based on the values of compound annual growth rate according to the last step of the research methodology was provided. It should be noted that the values of taxonomic measures of development in 2008 for all EU countries are significantly different from others. The decline of these measures from 2009 is probable the result of the world economic crisis from 2007-2008. Taking into account the above information, the values of compound annual growth rate were calculated on the basis of data from 2009-2014¹.

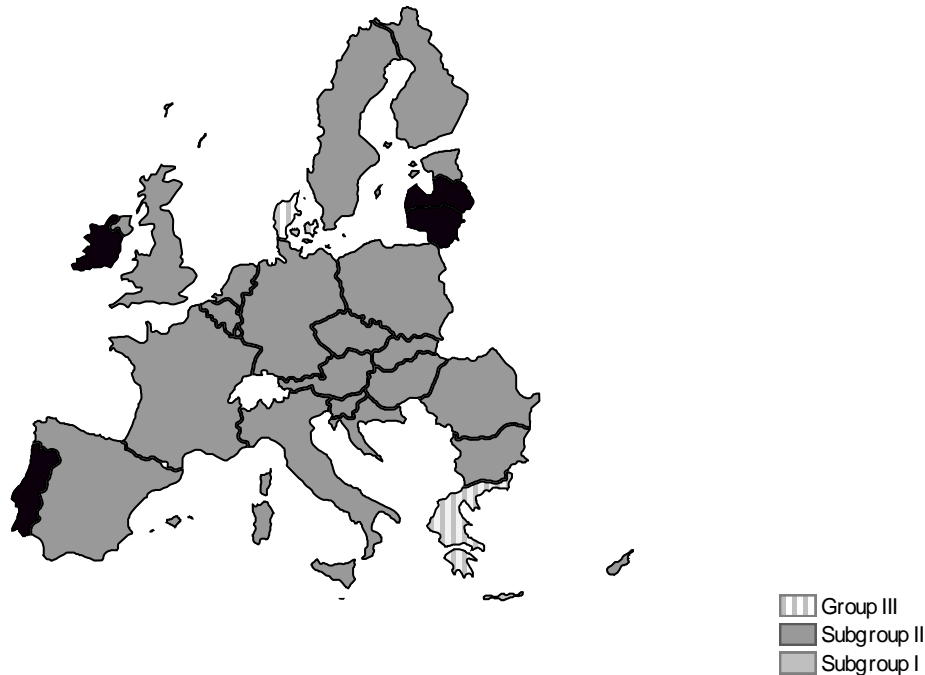
Figure 1 presents the results of assignment of EU countries to typological groups according the results of relative compound annual growth rate. To the first group EU countries characterizing by the improvement in the level of sustainable development were classified. This group is made up of almost all EU countries (excluding Denmark and Greece). Due to significant differences in the values of designated measures for individual EU countries, it was decided to divide this group into two subgroups (first with the value of *rCAGR* over the mean for this group and second below this value). To the first subgroup 5 EU countries with the results of *rCAGR* over 10 % were classified as

¹ The geometric mean on the basis of which the relative compound annual growth rate is determined belongs to the group of classical average measures sensitive to outliers.

¹Corresponding author. E-mail address: iwona.bak@zut.edu.pl

²Corresponding author. E-mail address: katarzyna.cheba@zut.edu.pl

follows: Malta, Latvia, Lithuania, Ireland and Portugal but the highest improvement ($rCAGR > 80\%$) for Malta was observed. While the second subgroup by 20 EU countries (both by countries belonging to EU-15 and so called "new members") was made. In this subgroup, the lowest increase of the $rCAGR$ for Cyprus was observed ($rCAGR=0.61\%$).



Source: author's calculations based on Eurostat data

Fig. 1. Division of EU countries into the typological groups according the $rCAGR$

Conclusions

On the basis of study results presented in the paper the following conclusions can be formulated.

- 1) The paper attempts to identify trends of changes in the area of sustainable development in EU countries and to distinguish typological groups of objects with similar dynamics of the studied phenomenon. The results of the presented research and analyses confirm the observations in the literature on the differences in the development of the EU. The economic crisis of 2007/2008 led to significant changes in the ranking of EU countries due to sustainable development. Therefore, when analysing the dynamics of sustainable development using the relative compound annual growth rate, it was decided to include only the period 2009-2014.
- 2) Almost all of the analysed EU countries were classified into the first group, characterized by an improvement in the area of sustainable development. Nevertheless, due to significant differences in the relative compound annual growth rate (almost 80 pp) within the first group, the EU countries were divided into those for which the relative compound annual growth rate is above and below the value of mean. It turned out that despite the increase in the taxonomic value of development, and thus the positive relative compound annual growth rate, the positions of EU countries in the rankings were not significantly improved in most cases. This was due to the fact that the increase in the value of taxonomic measures concerned the majority of EU Member States.

¹Corresponding author. E-mail address: iwona.bak@zut.edu.pl

²Corresponding author. E-mail address: katarzyna.cheba@zut.edu.pl

- 3) The division of the EU countries into groups according to time of accessing to European Union can't be treated as a criterion of classification. Almost all of analysed EU countries were classified into first group characterized by improvement of the change over time in the area of sustainable development.
- 4) The results obtained in this study can be used in subsequent years to verify the direction of changes in sustainable development levels observed both from the point of view of the EU Member States and groups of these countries divided according to the time of accessing to EU.

Bibliography

1. Borys, T. (2002). *Wskaźniki rozwoju zrównowazonego. Podstawowe kierunki badań i zastosowań*, (Indicators of sustainable development. Basic directions of research and applications), *Ekonomia i Środowisko*, No. 1(21), pp. 39-59.
2. Borys, T. (2011). *Zrównowazony rozwój – jak rozpoznać ład zintegrowany*, (Sustainable development - how to recognize integrated order), *Problemy Ekorozwoju: studia filozoficzno-socjologiczne*, No. 6(2), pp. 75-81.
3. Brown, B., J., Hanson, M., E., Liverman, D., M., Merideth, R., W., Jr. (1987). *Global Sustainability: Toward Definition*, *Environmental Management*, No. 11(6), pp. 713-719.
4. Central European Policy Institute. (2014). *Central Europe fit for the future*, Bratislava and Warsaw.
5. Dovers, S., R., Handmer, J., W. (2009). *Contradictions in Sustainability*, *Environmental Conservation*, NO. 20(3), pp. 217-222.
6. Goodland, R. (1995). *The Concept of Environmental Sustainability*, *Annual Review of Ecology and Systematics*, No. 26, pp. 1-24, <http://www.jstor.org/stable/2097196>.
7. Hellwig, Z. (1968). *Zastosowanie metody taksonomicznej do typologicznego podziału krajów ze względu na poziom ich rozwoju oraz zasoby i struktury wykwalifikowanych kadr*, (Application of the taxonomic method to the typological division of countries due to the level of their development and the resources and structure of qualified personnel), *Przegląd Statystyczny*, No. 4, pp. 12-25.
8. Hellwig, Z. (1981). *Wielowymiarowa analiza porównawcza i jej zastosowanie w badaniach wielocechowych obiektów gospodarczych*, (Multidimensional comparative analysis and its application in studies of multi-technical economic objects), *PWE, Warszawa*.
9. Hopwood, B., Mellor, M., O'Brien, G. (2005). *Sustainable Development: Mapping Different Approaches*, *Sustainable Development*, No. 13(1), pp. 38-52.
10. Lira, J., Wagner, W., Wysocki, F. (2002). *Mediana w zagadnieniach porządkowania obiektów wielocechowych*, (Median in the problems of organizing multi-feature objects), [w:] J. Paradysz (red.), *Statystyka regionalna w służbie samorządu lokalnego i biznesu*, Internetowa Oficyna Wydawnicza Centrum Statystyki Regionalnej, Akademia Ekonomiczna w Poznaniu, Poznań, pp. 87-99.
11. Młodak, A., Józefowski, T., Wawrowski, L. (2016). *Zastosowanie metod taksonomicznych w estymacji wskaźników ubóstwa*, (Application of taxonomic methods in estimation of poverty indicators), *Wiadomości Statystyczne*, R. LXI, 2, pp. 1-24.
12. Nowak, E. (1990). *Metody taksonomiczne w klasyfikacji obiektów społeczno-gospodarczych*, (Taxonomic methods in the classification of socio-economic objects), *PWE, Warszawa*.
13. Piontek, B. (2002). *Koncepcja rozwoju zrównowazonego i trwałego*, (The concept of sustainable and durable development), *PWN, Warszawa*.
14. Redclift, M. (1992). *The Meaning of Sustainable Development*, *Geoforum*, No. 23(3), pp. 395-403.
15. Shearman, R. (1990). *The Meaning and Ethics of Sustainability*, *Environmental Management*, No. 14(1), pp. 1-8.
16. Szopik-Depczynska, K., Cheba, K., Bak, I., Kiba-Janiak, M., Saniuk, S., Dembinska, I., Ioppolo, G., (2017). *The applications of relative taxonomy to the study of disproportions in the area of sustainable development of the European Union*, *Land Use Policy*, 68, pp. 481-491.
17. UNEP. (1975). *Declaration of the United Nations Conference on the Human Environment, United Nations Environment Programme (UNEP)*, Stockholm. www.unep.org, retrieved 2016-10-22.
18. Weber, A. (1909, reprint 1971). *Theory of Location of Industries*, Russel & Russel, New York.
19. World Commission on Environment and Development (WCED). (1987). *Raport Brundtland. Our Common Future*, Oxford, Oxford University Press, New York.
20. Zelias, A. (ed.). 2000. *Taksonomiczna analiza przestrzennego zróżnicowania poziomu życia w Polsce w ujęciu dynamicznym*, (Taxonomic analysis of spatial differentiation of living standards in Poland in dynamic terms), *AE, Kraków*.
21. Zhu, J., Hua, W. (2016). *Visualizing the Knowledge Domain of Sustainable Development Research between 1987 and 2015: a Bibliometric Analysis*, Research Team on Sustainable Development Wuhan University, Wuhan China.

¹Corresponding author. E-mail address: iwona.bak@zut.edu.pl

²Corresponding author. E-mail address: katarzyna.cheba@zut.edu.pl

SELECTED EUROPEAN UNION OPERATIONAL FUNDS' IMPACT ON NEWLY EMERGING SMES IN THE LUBELSKIE VOIVODESHIP

Katarzyna Boratynska¹, PhD.; Emilia Andrusiewicz², MSc

¹ Warsaw University of Life Sciences – SGGW, Faculty of Economic Sciences, Department of Finance;

² Business Activity: EMILIA ANDRUSIEWICZ

Abstract. The research problems comprise issues connected with acquiring EU funds for newly established SMEs. The main purpose of the article is to discuss the significance of the EU funds for the establishment of SMEs in the Lubelskie Voivodeship. The research included the following tasks: characterization of selected aid funds, description and assessment of instruments that support the development of the newly established small and medium-sized enterprises as well as presentation of advantages that stem from the implementation of the aid funds in the Lubelskie Voivodeship. In order to meet the aim of the article and to verify the hypotheses elements of statistics, descriptive and tabular analysis were also used. A case study method was also applied. The theoretical part of the paper describes the SME sector and its role in the economy. The empirical part analyses the Regional Operational Program for the Lubelskie Voivodeship, as well as a total of 20 projects implemented under the Human Capital Operational Programme and addressed for the newly established SMEs. However, the article is limited only to presenting the details of 4 selected projects taking the criterion of the highest amount of the acquired funds into account. As a result, entrepreneurs have a chance of obtaining funds allowing them to establish and develop their businesses. Due to the use of the aid funds, many new jobs were created, which had a positive impact on a decrease in unemployment, as well as on the local development. For instance, the Human Capital Operational Programme, Priority VI, Operation 6.1, co-financed by the EU under the European Social Fund for 2007–2013 in the Lubelskie Voivodeship provided as much as over PLN 354 million, with the EU funding amounting to over PLN 299 million. As a result of those funds, 5,109 new businesses were opened. An important result was also an increase in entrepreneurial awareness and conducting own business activity, which in the future can stimulate further economic growth of the Lubelskie Voivodeship.

Key words: European Union operational funds, small and medium-sized enterprises.

JEL code: F15, F35, F36, F63

Introduction

The small and medium-sized enterprise sector (SME) in Poland has a significant impact on the employment level and economic growth of particular regions, as well as the entire country. Small and medium-sized enterprises create new jobs. A major obstacle in the development of small and medium-sized enterprises is the problem with obtaining funds at the initial stage of commencing business activity. Lack of financial resources prevents investments and, furthermore, the enterprise is not competitive, which leads to bankruptcy in the first year of conducting business activity. In Poland, that percentage value is approximately 26 % (*Raport o stanie sektora...*, 2015, p. 36).

Poland is a beneficiary of EU funds received under particular financial perspectives. The main goal of these is to reduce disparities between levels of development of the other EU countries (Sikora-Gaca M., Kosowska U., 2014, p. 13). The European Union strives to create a knowledge-based competitive economy. One of the focus areas of assistance under the EU funds is stimulating and supporting entrepreneurship in particular countries and regions. Through the investments in the human capital and development of innovation the EU implements its joint strategy to establish efficient economy. The small and medium-sized enterprise sector contributes to sustainable growth of the entire country. Small and medium-sized companies also improve innovativeness of the Polish economy as well as mitigate the negative effects of economic crises.

Methodology of the study

The Lubelskie Voivodeship, constituting the area of empirical research, is a poorly developed voivodeship. The development of the small and medium-sized enterprise sector is a chance to

¹Corresponding author. Tel. +48 22 59 342 . E-mail: katarzyna_boratynska@sggw.pl,, ORCID ID: 0000-0001-8803-3234

²Corresponding author. Tax No.: 5372591678, E-mail: emiliaandrusiewicz@gmail.com

strengthen its position. However, there are just a few studies connected with the use of the EU funds by newly established SMEs in the Lubelskie Voivodeship. Thus, the topic should be further studied. Another important issue is the assessment of the use of EU funds from the 2007-2013 perspective by people opening their own businesses.

The main purpose of the research was to assess the importance of the selected aid funds in the period of 2007-2013 (the research period was adopted in line with the EU financing perspective) in reference to the establishment of small and medium-sized enterprises (SMEs) in the Lubelskie Voivodeship. Under the formulated research goal, the following research tasks were selected:

- description of selected aid funds,
- characterisation and assessment of instruments supporting the development of the newly established small and medium-sized enterprises in the Lubelskie Voivodeship,
- presentation of advantages that stem from the implementation of the aid funds in the Lubelskie Voivodeship.

The article attempts to verify the following research hypothesis: the EU aid funds provide significant financial support for the establishment of new small and medium-sized enterprises, they reduce the unemployment rate and have a positive impact on the growth of the Lubelskie Voivodeship.

The empirical part of the research analyses the Regional Operational Programme for the Lubelskie Voivodeship, as well as a total of 20 projects implemented under the Human Capital Operational Programme in the Lubelskie Voivodeship addressed to newly established SMEs. The article is limited only to presenting the details of 4 selected projects supporting the newly established SMEs in the Lubelskie Voivodeship taking the criterion of the highest amount of the acquired funds into account (2 projects under the Human Capital Operational Programme, Priority VI "The labour market for everyone", Operation 6.1 "The improvement of access to employment and support for professional activity in the region" and 2 projects under the Human Capital Operational Programme, Priority VI "The labour market for everyone", Operation 6.2 "Support and promotion of entrepreneurship and self-employment").

Research methods

Data collection methods

The basic source of information on the importance of the EU aid funds for small and medium-sized enterprises in the Lubelskie Voivodeship was the data from: The Database of the National Information System SIMIK 07-13, materials made available by the Poviats Labour Offices, the Central Statistical Office, the Polish Agency of Entrepreneurship Development, reference books, and press articles.

Data processing methods

The article mostly analyses the data and information from secondary sources. In order to meet the goal of the paper and to verify the hypotheses elements of statistics, descriptive and tabular analysis were also used. A case study method was also presented.

Methods of result presentation

The research results and the presentation of the collected materials were presented with the use of: the graphical method, the descriptive and tabular method, as well as the analytical method.

Research results and discussion

The role of small and medium-sized enterprises in the economy

¹Corresponding author. Tel. +48 22 59 342 . E-mail: katarzyna_boratynska@sggw.pl,, ORCID ID: 0000-0001-8803-3234
²Corresponding author. Tax No.: 5372591678, E-mail: emiliaandrusiewicz@gmail.com

The term "small and medium-sized enterprise" was also defined based on the quantitative criterion (Table 1). It shows the size of the enterprise with the use of measurable parameters in the context of expenditure on its activity or the effects of the conducted activity (Lachiewicz S., Matejun M., 2012, p. 15).

Table 1

Quantitative and qualitative criteria of classification of SMEs

Specification of enterprises	Number of employees	Annual turnover	Total balance sheet
Micro	below 10 employees	below 2 mln euro	below 2 mln euro
Small	10-49 employees	2-10 mln euro	2-10 mln euro
Medium	50-249 employees	10-50 mln euro	10-43 mln euro

Source: authors' study based on Nowa definicja MSP. Poradnik dla użytkowników i wzor oświadczenia (New definition of SMEs. Guide for users and pattern of declaration) (2016), Wspólnoty Europejskie, p. 14

"In 2013, there were 1.77 million non-financial enterprises defined as active enterprises. Small and medium-sized enterprises constituted as many as 99.8 % of those entities" (Raport o stanie sektora..., 2015, p. 13). The role of SMEs is shown in the data presenting the share of those companies in the creation of the Gross Domestic Product. Those enterprises generate 73 % of the Gross Domestic Product. The small and medium-sized enterprise sector creates 48.5 % of the GDP, with approximately 30 % created by micro-enterprises (data for 2012) (Raport o stanie sektora..., 2015, p. 13). In the research period, an increased share of small and medium-sized enterprise sector in the creation of the Gross Domestic Product is noticeable. The growth trends of medium-sized and large enterprises in the creation of the general value of the GDP should also be noticed.

Another important area showing the importance of SMEs for economic growth is the employment level in the sector. It should be noticed that during the researched period the small and medium-sized enterprise sector employed the greatest number of people. At the end of 2013, the number of people employed in Polish enterprises was almost 8.9 million, while 69.46 % worked in the small and medium-sized enterprise sector. It should also be noted that the enterprises that employ more than 10 people have the greatest share in employment in the SME sector (in 2013 they constituted 54.53 % of total employment in the SME sector and 37.88 % in the total number of people employed by enterprises).

The number of enterprises in the Lubelskie Voivodeship in 2013 constituted only 4.17 % of the total number of enterprises in Poland. In 2013, the SME sector constituted 99.89 % of all enterprises registered in this voivodeship. Micro-enterprises constituted 95.79 % of the total SME sector. A similar situation was observed in preceding years.

The main factors having impact on such a high percentage of micro-enterprises in the Lubelskie Voivodeship included: lack of work, problems with employment, hope of getting a better salary, the wish to improve one's own economic status, as well as the willingness to try self-employment (Wojewodzki Urząd Pracy w Lublinie, 2013, p. 13).

From 2007, the number of enterprises in the Lubelskie Voivodeship was decreasing. In 2010, this trend reversed, but the level of 2007 has not been achieved yet. However, an upward trend for the enterprises employing between 10 to 49 people should be noted. This may indicate the growth of micro-enterprises that started employing more people and, thus, transformed into small enterprises. In 2007-2013, the sector of small and medium-sized enterprises employed approximately 75-80 % of all people employed in non-financial enterprises in the Lubelskie Voivodeship. Those enterprises generated the highest number of jobs.

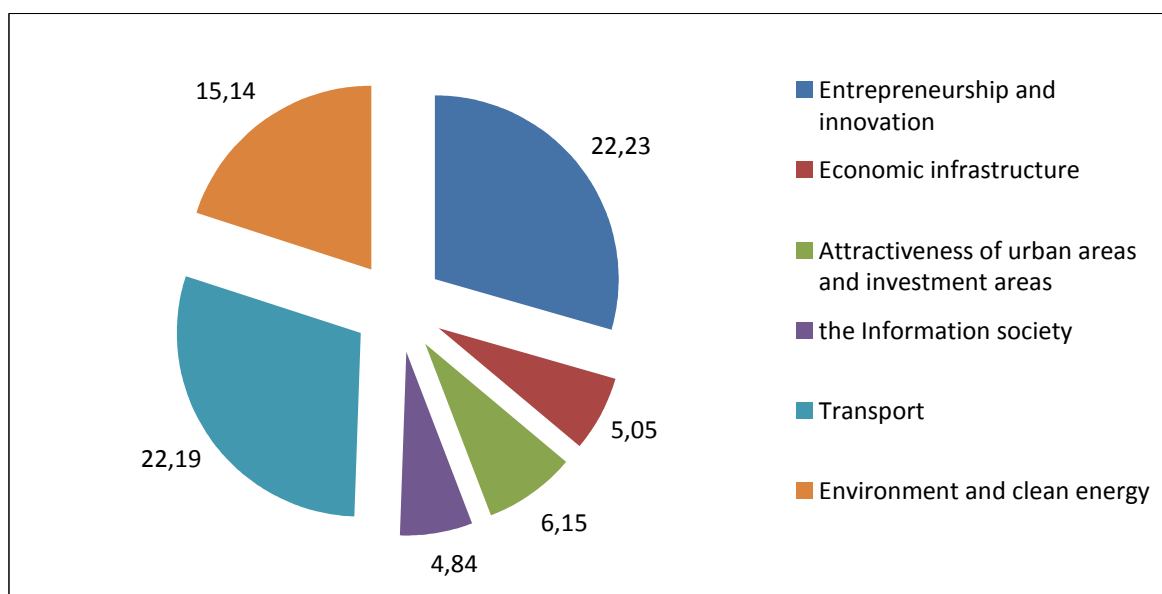
The importance and impact of the selected EU operational programmes to the establishment of small and medium-sized enterprises in the Lubelskie Voivodeship

Regional Operational Programme for the Lubelskie Voivodeship

The Regional Operational Programme for the Lubelskie Voivodeship is one of 16 regional operational programmes. The main purpose of the ROP LV is to “enhance the competitiveness of the Lublin Region to lead to accelerated economic growth and an increase in employment, taking the natural and cultural resources of the region into account” (Zarząd Województwa Lubelskiego, 2017, p. 5). The assumption of the Regional Operational Programme for the Lubelskie Voivodeship was to stimulate economic growth in less developed areas (Regionalny Program Operacyjny..., 2013, p. 90). In the 2007-2013 perspective, approximately EUR 1.192.8 million from the European Regional Development Fund was allocated to implement the Regional Operational Programme for the Lubelskie Voivodeship (Regionalny Program Operacyjny..., 2013, p. 167).

Under the Regional Operational Programme for the Lubelskie Voivodeship, nine priority axes were identified: Entrepreneurship and innovation, Economic infrastructure, Attractiveness of urban areas and investment areas, the Information society, Transport, Environment and clean energy, Culture, tourism and inter-regional co-operation, Social infrastructure, Technical support (Regionalny Program Operacyjny..., 2013, pp. 111-164).

The Figure 1 shows the distribution of resources allocated for financing each of the nine priority axes mentioned above.



Source: Authors' calculations based on Regionalny Program Operacyjny Województwa Lubelskiego na lata 2007-2013 (Regional Operational Programme for the Lubelskie Voivodeship in 2007-2013) (2013). CCI 2007PL161PO007, Dokument przyjęty przez Komisję Europejską w dniu 27 czerwca 2013 r., 111-164.

Fig. 1. Percentage share of the structural funds under the Regional Operational Programme for the Lubelskie Voivodeship in reference to particular priorities

Subsidies for newly established micro-enterprises under the Regional Operational Programme for the Lubelskie Voivodeship

Due to the projects co-financed from the EU funds under the European Regional Development Fund - ROP LV under the priority I axis: Entrepreneurship and innovation, Operation 1.1. “Subsidies for newly established micro-enterprises in the Lubelskie Voivodeship”, in 2008, 22 newly created micro-enterprises received subsidies. The total value of the projects awarded in 2008 was

PLN 8.9 million and the EU co-funding amounted to PLN 3.9 million. In 2013, due to this financial support 50 Beneficiaries from the Lubelskie Voivodeship received subsidies. The total value of the projects under grant schemes for newly created micro-enterprises in 2013 was PLN 23.7 million and the EU co-funding amounted to PLN 8.7 million. In 2014, the subsidies for newly established micro-enterprises were used by 26 enterprises from the Lubelskie Voivodeship. The total value of the projects under this operation was PLN 10.2 million and the EU co-funding amounted to PLN 4.2 million (Lista beneficjentow Funduszy, 2017).

The Human Capital Operational Programme as the source of financing the newly established SMEs in the Lubelskie Voivodeship

The Human Capital Operational Programme (HCOP) was prepared in line with the Regulation of the Council (EC) no. 1083/2006 laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund (Szczegółowy opis priorytetow, 2014, p. 6). The aim of the Human Capital Operational Programme is to encourage use of the potential of human resources by increasing employment, as well as taking advantage of the adaptive possibilities of employees and enterprises. The activities under the programme focused on increasing the education level, as well as reducing areas of social exclusion (Weclawski J., Misterek W., 2011). The Human Capital Operational Programme focused on supporting employment by activation of the unemployed. An important element of the programme was also supporting projects promoting entrepreneurship and self-employment. Those activities were aimed at increasing the potential of both employees and enterprises to enable further growth of those enterprises.

Under the Human Capital Operational Programme, Priority VI "The labour market for everyone", financed from the resources of the Labour Fund, projects allowing entities to receive support in the form of one-off funds to commence business activity, as well as support in the form of consultancy connected with commencing business activity were implemented in the Lubelskie Voivodeship.

The "Active on the labour market" project was implemented under the Human Capital Operational Programme, Priority VI "The labour market for everyone", Operation 6.1 "The improvement of access to employment and support for professional activity in the region". The beneficiary of the project was Powiat Chelmski - the Powiat Labour Office in Chelm. The project was implemented from 1 January 2008 until 31 December 2014. The project granted support for 6.691 people. The funds to commence own business activity were received by 615 people. Also support connected with reimbursement of the costs incurred for equipment and providing equipment to workplaces for 129 micro-enterprises, 31 small enterprises and 4 medium-sized enterprises was granted (Projekt „Aktywni na rynku pracy”, 2008-2014, Powiatowy Urzad Pracy w Chelmie). The total value of the projects was PLN 50.7 million and the EU co-funding amounted to PLN 43.1 million (Lista beneficjentow Funduszy, 2017).

Another project under Sub-Operation 6.1.3. "Improvement of abilities of employing and increasing the level of economic activity of the unemployed" was the project called "Ambitious and entrepreneurial." The beneficiary of the project was Gmina Lublin - the City Labour Office in Lublin. The project was implemented from 1 January 2008 until 31 December 2014. The systemic project covered 2243 people. As a result of the financial support 575 participants commenced their own business activity (Projekt „Aktywni na rynku pracy”, 2008-2014, Miejski Urzad Pracy w Lublinie).

The total value of the projects was PLN 59.1 million and the EU co-funding amounted to PLN 50.2 million (Lista beneficjentow Funduszy, 2017).

One of the projects implemented in the Lubelskie Voivodeship was "Be active - become an entrepreneur". The project was implemented under the Human Capital Operational Programme, Priority VI "The labour market for everyone", Operation 6.2 "Support and promotion of entrepreneurship and self-employment", based on the co-financing agreement for implementation of the project signed with the Voivodeship Labour Office in Lublin. The project was co-financed by the EU under the European Social Fund. The beneficiary of the "Be active - become an entrepreneur" project was Lubelska Szkoła Biznesu Sp. z o.o. The main aim of the project was to grant assistance to natural persons intending to conduct business activity. The program was addressed to a group of 96 people with at least 70 % of women participants. People living in rural areas constituted at least 30 % of the group and people who lost work not due to their own fault constituted at least 10 %. The support under the project included free training and consultancy services for 96 people, financial means for the development of entrepreneurship - 70 subsidies up to PLN 40,000 and bridge support in the form of free specialist consultancy services and financial means paid out to 32 entrepreneurs for 6 months in monthly instalments whose amount did not exceed the amount of minimum wage. The project was implemented from 1 January 2010 until 30 June 2012. The total value of the projects was PLN 4.1 million and the EU co-funding amounted to PLN 3.5 million (Lista beneficjentow Funduszy, 2017).

An important project implemented under the Human Capital Operational Programme, Priority VI "The labour market for everyone", Operation 6.2 "Support and promotion of entrepreneurship and self-employment", based on the co-financing agreement for implementation of the project signed with the Voivodeship Labour Office in Lublin was the "Spread your wings!" project. The project was co-financed by the EU under the European Social Fund. The beneficiary of the project was Consultor Sp. z o.o. The main objective of the project was to increase the entrepreneurship level in the Lubelskie Voivodeship by supporting people opening new businesses. The participants of the project were 60 people, including 42 women and 18 men. The participants were unemployed and had not conducted their own business activity in the period of 12 months before the date of signing up to the project. Under support also financial means for the development of entrepreneurship was granted for 51 people, with the maximum amount of subsidy being PLN 40.000. Under the bridge support all entrepreneurs received financial support amounting to PLN 900 for the period of the first 6 months. 15 people, who had the greatest difficulty in conducting business activities, received prolonged bridge support of PLN 900 for the period of another 6 months. The project was implemented from 1 October 2010 until 31 May 2012. The total value of the projects was PLN 2.9 million and the EU co-funding amounted to PLN 2.4 million (Lista beneficjentow Funduszy, 2017).

Conclusions, proposals, recommendations

- 1) The small and medium-sized enterprise sector has a positive impact on economic growth both on the domestic and regional level. SMEs contribute to a reduction in unemployment on local markets. They also have influence on entrepreneurial attitudes and, thus, an increase in the wealth of the society in a given region. SMEs also have an impact on the regional development by using local resources, attracting investors and using aid programmes available for companies and regions. Small and medium-sized enterprises are also a source of taxes for the local

¹Corresponding author. Tel. +48 22 59 342 . E-mail: katarzyna_boratynska@sggw.pl,, ORCID ID: 0000-0001-8803-3234
²Corresponding author. Tax No.: 5372591678, E-mail: emiliaandrusiewicz@gmail.com

budget. The SME sector is one of the key factors for increasing competitiveness in voivodeships and accelerating the pace of their economic growth.

- 2) Due to the projects co-financed from the EU funds under the European Regional Development Fund - the Regional Operational Programme for the Lubelskie Voivodeship under the priority I axis: Entrepreneurship and innovation, Operation 1.1. subsidies for newly established micro-enterprises under the 2007-2013 perspective in the Lubelskie Voivodeship were granted to a total of 402 newly created enterprises. The total value of all implemented projects was PLN 197.2 million and the EU co-funding amounted to PLN 72.5 million. The subsidies granted were to increase the investment predispositions at the initial phase of micro-enterprise operation. The preferred projects included innovative solutions which would have impacted the pace of growth of a given enterprise. All activities of the newly created enterprises should be aimed towards increasing competitiveness on the market, which was possible due to the means acquired from the EU funds.
- 3) Under the Human Capital Operational Programme, Priority VI "The labour market for everyone", Operation 6.1 "The improvement of access to employment and support for professional activity in the region", co-financed by the EU under the European Social Fund for 2007-2013 in the Lubelskie Voivodeship as much as PLN 354.1 million was allocated across the Lubelskie Voivodeship, with the EU funding amounting to PLN 299.9 million. As a result of those funds, 5,109 new businesses were opened. An important result was also an increase in the entrepreneurial awareness and conducting own business activity which, in the future, can stimulate economic growth of the Lubelskie Voivodeship.
- 4) Under the Human Capital Operational Programme, Priority VI "The labour market for everyone", Operation 6.2 "Support and promotion of entrepreneurship and self-employment", co-financed by the EU under the European Social Fund for 2007-2013, as much as PLN 23.0 million was allocated across the Lubelskie Voivodeship, with the EU funding amounting to PLN 19.3 million. As a result, as many as 331 new companies and 11 social cooperatives were established. From the researched group of people who commenced their own business activity, as many as 361 received bridge support which facilitated them entering the market as entrepreneurs.

Bibliography

1. Lachiewicz, S., Matejun, M. (2012). *Specyfika zarządzania małymi i średnimi przedsiębiorstwami*. [W:] Zarządzanie małą i średnią firmą w teorii i ćwiczeniach (*The Specificity of Small and Medium Enterprises Management. [In:] A Small and Medium Company Management in Theory and Practice*). Difin, p. 15.
2. *Lista beneficjentów Funduszy Europejskich 2007-2013 - stan na 31 marca 2017 (List of EU Funds Beneficiaries in the Period of 2007-2013 - State of 31st March 2017)* (2017). Baza Krajowego Systemu Informatycznego SIMIK 2007-2013.
3. *Nowa definicja MSP. Poradnik dla użytkowników i wzor oświadczenia (New definition of SMEs. Guide for users and pattern of declaration)* (2016) Wspólnoty Europejskie, p. 14.
4. *Projekt „Aktywni na rynku pracy” („Active on the Labour Market” Project)*. Dane z lat 2008-2014. Miejski Urząd Pracy w Lublinie.
5. *Projekt „Aktywni na rynku pracy” („Active on the Labour Market” Project)*. Dane z lat 2008-2014. Powiatowy Urząd Pracy w Chełmie.
6. *Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce (State of Small and Medium-Sized Enterprises Sector Report)* (2016). Polska Agencja Rozwoju Przedsiębiorczości, Warszawa, p. 36.
7. *Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce w latach 2013-2014 (State of Small and Medium-Sized Enterprises Sector Report in the period of 2013-2014)* (2015). Polska Agencja Rozwoju Przedsiębiorczości, Warszawa, p. 13.
8. *Regionalny Program Operacyjny Województwa Lubelskiego na lata 2007-2013 (Regional Operational Programme for the Lubelskie Voivodeship in 2007-2013)* (2013). CCI 2007PL161PO007, Dokument przyjęty przez Komisję Europejską w dniu 27 czerwca 2013 r., pp. 90, 111-164, 167.

9. Sikora-Gaca, M., Kosowska, U. (2014). *Fundusze europejskie w teorii i praktyce. Edukacja, gospodarka, kultura, społeczeństwo (EU Funds in Theory and Practice. Education, Economy, Culture, Society)*. Difin, Warszawa, p. 13.
10. *Szczegółowy Opis Osi Priorytetowych Regionalnego Programu Operacyjnego Województwa Lubelskiego na lata 2007-2013 (Detailed Description of Priorities Axes of Regional Operational Programme for the Lubelskie Voivodeship in 2007-2013)*. Uszczegółowienie Programu Narodowe Strategiczne Ramy Odniesienia 2007-2013 Polska (*National Strategic Framework Programme in 2007-2013 Details - Poland*). Zarząd Województwa Lubelskiego, p. 5.
11. *Szczegółowy opis priorytetów Programu Operacyjnego Kapitał Ludzki 2007-2013 (Detailed Description of Priorities of Human Capital Operational Programme in 2007-2013)* (2014), Narodowa Strategia Spójności (*National Cohesion Strategy*), Warszawa, p. 6.
12. Weclawski, J., Misterek W. (red.), (2011). *Uwarunkowania wykorzystania funduszy Unii Europejskiej przez jednostki samorządu terytorialnego w województwie lubelskim (Conditions of Using of EU Funds by local government in Lubelskie Voivodeship)*. Difin, Warszawa.

THE SOCIAL CONSTRUCTION OF ENVIRONMENT IN LATVIAN LOCAL NEWSPAPERS

Ianis Bucholtz¹ Dr. sc. comm.

¹ Institute of Social, Economic and Humanities Research of Vidzeme University of Applied Sciences

Abstract. This paper examines the content of four local Latvian newspapers in order to find out how the media construct the environment of four inhabited places — Mazsalaca, Kandava, Kraslava, and Kemerī. The analysis of newspapers "Liesma," "Neatkarīgas Tūkuma ziņas," "Ezerzeme," and "Jūrmalas vārdi" show that during the last six months of 2017, the most prominent themes that describe local landscapes were nature and ecology, agriculture, social environment, people, surroundings, and events, belonging and identity, and borders. While the newspapers differ in the attention they pay to some themes, the dominating meanings attached to the places they cover share similarities. The newspapers acknowledge the social and economic challenges of the inhabited places they cover, but at the same time, they emphasise what they interpret as unique qualities of the place, such as nature, people, and cultural heritage. Thus, the analysis shows how media, through negotiating and enforcing meanings of physical environments, take part in shaping local landscapes, which emerge as culturally grounded symbolic expressions recognized by the local communities.

Key words: landscapes, Latvian municipalities, local media, local newspapers, social construction of environment.

JEL code: B54

Introduction

Since in the contemporary advanced societies nearly everything people know they know from the media (Luhman, 2000), media takes a central role in communication processes. This refers not only to transmission of information, but also maintaining social and interpersonal connections among people, institutions, and places. As noted by Akhil Gupta and James Ferguson (1997), mediated experience is an integral part of even the most local experiences.

Alongside with geographical and administrative divisions and public institutions, the media take part in shaping spatial and social territories (Zelce, 2006). The contemporary information environment is characterized by increased supply of sources and subsequent fragmentation of audiences (Jenkins, 2006; Rozukalne, 2012), but local media, which report on topicalities in a particular populated area, still are important providers of information and viewpoints. Despite globalization, life of the majority of people is still locally grounded, and many of their important relationships take place in their local area (Aldridge, 2007). On the one hand, the local media are agents that socially construct (Berger and Luckmann, 1971) the particular place. On the other hand, the media themselves are a product of place-based relationships in which they operate. Their unique place in the local information environment invite inquiry into how they present and interpret the places they are covering.

The aim of this paper is to examine landscapes that Latvian local newspapers present through their coverage of four distinct inhabited places. Thomas Greider and Lorraine Garkovich (1994) define "landscape" as a "symbolic environment created by a human act of conferring meaning on nature and the environment." In other words, landscapes refer to social constructions of physical environments that are perceived and described through the lens of particular values and beliefs. This concept relates to David Morley's (2000: 174) description of "place" as "the materialized idea of the relations that its inhabitants have with each other, with their ancestors and with outsiders." Thus, people who live or frequent a particular place, incorporate their ties to it within their networks of connections to their peers, histories, and social norms. Various social groups can interpret the same environment quite differently and attach different meanings to it.

In this case, the elements through which environments are presented in the local newspapers illustrate some of the meanings that are negotiated and enforced through the media discourses, which, in turn, at least partly shape and are shaped by the conceptions present in the local audience.

Local newspapers in Latvia

Most of the current Latvian local newspapers can trace their roots back to the Soviet times, when a newspaper was issued in each administrative district (Zelce, 2006). Even though the founding rationale for the existence of local newspapers in the Soviet times was an ideological one — their objective was to communicate the official narratives to the public —, these newspapers managed to become an intrinsic and beloved part of the daily lives of the local population. In addition to their standardized political functions, the local print media also promoted and communicated local symbols, self-conceptions, and emotional environments that distinguish the particular populated area from other territories (Zelce, 2006). In doing so, these newspapers have had a role in defining, shaping and acknowledging local communities as distinct social entities.

Currently, the circulations and, by extension, turnover of Latvian newspapers are in steady decline (Brikse and Zelce, 2008). This process was particularly exacerbated by the consequences of the global economic crisis of 2008 (Spakovska, Jemberga, Krutaine and Springe, 2014). National newspapers lose in competition with online sites that provide news for free and are updated constantly. The withering of readership has also been an issue for local newspapers. Diminishing local populations, fall of advertising revenues and free-of-charge municipal newsletters, which distort competition (Cepkauskaite, Krutaine, Matsalu and Spakovska, 2015), pose long-term risks to the survival of the local newspapers. According to Guntars Licis, the managing director of the Latvian Association of Press Publishers, most of the Latvian local media currently are balancing on the edge of survival, and many such newspapers are not profitable (Balode, 2017). The online versions of the local newspapers usually do not make money.

At the same time, the local newspapers up until now have been a little more resistant to the processes that have caused the decline of national newspapers. Few local online-based competitors to the newspapers exist, and these print outlets in many cases preserve their niche in the market. In 2017, 31 % of the Latvian population had read or skimmed though at least one local newspaper per week (TNS Latvia, 2017). Thus, study of these newspapers still provides some insight into the local public spaces that are shaped by the media and, through them, perceived by the audience.

Vita Zelce (2006) previously has reported that the most prominent topics in the Latvian local newspapers are cultural events, everyday life, and politics; less attention is reportedly being devoted to the economy. Municipal public relations newsletters, in turn, have been shown to present environment-related issues through such themes as nature, cultural and historical heritage, safety, and quality of life, while abstaining from the critical evaluation of the performance of municipal officials (Bucholtz, 2017). However, journalistic entities are guided by media logic that differs from other media production disciplines (Deuze, 2009), thus the contents of two types of media outlets are not necessarily comparable.

Methodology

The data was gathered from the newspapers that cover four municipalities in Latvia: Mazsalaca, Kraslava, Kandava, and Kemerī. These territories were chosen based on their diversity from each

other in terms of size, population, location, and available natural and cultural resources. These territories are the focus of a research project "The processes of the development of cultural environment, preservation of environmental diversity and urbanization in the context of balanced development of Latvia," which examines balanced regional development through the lens of cultural environment, environmental diversity, and urbanization processes (Livina et al., 2016).

Mazsalaca (territory: 417 square kilometres; population: 3 030) (CSB, 2017) is a small town in the northeast part of Latvia and is a quite popular destination for tourists largely thanks to its nature trail. Events in Mazsalaca are covered by "Liesma," a newspaper that particularly focuses on Valmiera, which is the largest city of the region, and is issued four times a week. Kraslava (territory: 1 079 square kilometres; population: 14 963) (CSB, 2017) is located in the southeast part of Latvia, which is a region with a distinct cultural and geographical peculiarity. Kraslava is one of the municipalities covered by "Ezerzeme," which is issued twice a week in Latvian and Russian. Kandava (territory: 649 square kilometres; population: 8 085) (CSB, 2017) is a town in the western part of Latvia that lies within the Abava valley, which refers to a cultural and historical entity. The local newspaper that reports on topicalities in Kandava is "Neatkarīgas Tukuma ziņas." It is issued three times a week. Lastly, Kemerī (territory: 13.8 square kilometres; population: 2 288) is a part of Jūrmala, one of the larger cities in Latvia. Historically Kemerī has been associated with its resort and mineral springs. Kemerī is also notable for a national park with a popular bog trail. Events in Kemerī are covered by "Jūrmalas vārds," which comes out once per week in Latvian and Russian.

The study covers a period of the last six months of the year 2017. The output frequency of the analysed newspapers varies, so the first issue of each week was included in the sample, thus ensuring that each newspaper has an equal number of issues reviewed. The exception was made regarding "Liesma," of which the Thursday, rather than Tuesday issues were reviewed. On Thursdays, it publishes a section dedicated to municipalities near Valmiera.

The method employed in the study is the thematic analysis, which is suitable for the identification and examination of themes and concepts in various texts. It takes its approach from the grounded theory (Glaser and Strauss, 2006), which ascribes identifying analytical categories directly based on data, rather than pre-defined theoretical frameworks.

The procedure was based upon the principles of open coding (Bohm, 2004) and went as follows. The author read every article in the selected newspapers that discussed the particular place (Mazsalaca in "Liesma", Kraslava in "Ezerzeme" and so on) in order to get a sense of what is being reported and in what way; what aspects, events and objects are being highlighted, and who the described people are. Based on these observations, the author developed codes that capture the topics, actors, tones of expression, and other peculiarities that emerged. Finally, the findings were contextualized and the patterns interpreted as illustrations of the local landscapes.

Results

Nature and ecology, agriculture, social environment, people, surroundings and events, belonging and identity, and borders are among the most prominent themes that describe the local landscapes in the newspapers. This section describes each of these themes in detail.

Nature. The general focus of the newspaper coverage is on urban aspects of life and processes that have a short-term influence on the lives of local population. Since during the period of analysis no serious natural disasters, ecological hazards or other easy-to-report events occurred in the four

places, these topics, with some exceptions, apparently did not possess a significantly large news value.

The discussions of nature more commonly appear in discussions of the qualities that make the populated place attractive. For example, the chair of Kandava Municipality Inga Priede is reported as saying that "one of the benefits the municipality can offer to people that might move to the county is the beautiful nature" (Plaude and Trede, 2017). Similarly, the inhabitants of Mazsalaca reportedly claim that the vicinity to nature is a key reason why they find this to be "the best place to live" (Kalnina, 2017a).

In the coverage of "Jūrmalas vards," nature was a political issue. The deputies of Jūrmala City Council had opposing views about the plans to build new electrical lines that would cross a part of Kemerī National Park. Some fear that these electrical lines not only will ruin the aesthetics of the landscape, but also that the planned earthworks might disturb the local geology and damage the mineral springs of Kemerī. Others think that the availability of additional electrical power capacity is necessary for the further development of the territory. "The deputy from Nacionālā apvienība [the National Alliance] Andris Čuda takes a stand against the Kemerī National Park and the core values of the resort town — curative springs," the paper said of a politician who supported the building of the new power lines (Vilnītis, 2017).

Agriculture. Since agriculture of one of the traditionally strong economic sectors in the regions of Latvia, this topic is quite visible in the newspaper contents. A staple of news coverage in autumn is reports of harvesting crops and preparing agricultural fields for the next season. Association with agriculture holds a special place in the Latvian national identity (Locmele, 2014). While culturally rooted sympathies towards farmers in the newspapers can be encountered in the newspaper coverage, these are mostly implicit — agriculture is predominantly presented from the economy perspective. The reports on successes and failures of the agricultural sector, by extension, also contribute to the depiction of the prospects of providing jobs and attracting inhabitants to the place. The newspapers present farmers as mostly prosperous entrepreneurs who contribute to the general development of the place. For example, "Liesma" reported the growth in a local farm and noted its new grain dryer (Kalnina, 2017b), "Ezerzeme" stated that the participants in a seminar for growers of rapeseed and cereals have expressed hopes for a good harvest, barring adverse weather conditions (Goncarovs, 2017a). An exception is Kemerī, in which recreation and wellness industry, rather than agriculture, is among the most important resources of the local economy. As such, reports on the topicalities of resort and spa industry can be regularly encountered in the coverage of Kemerī in "Jūrmalas vards."

Social environment. The reflections on living conditions and opportunities in the local newspapers are two-fold. On the one hand, usually the newspapers favourably depict their towns and municipalities and describe the various qualities of these particular places, including cultural events, a forthcoming local population, and generally pleasurable living conditions. These qualities routinely are expressed as general attitudes by the interviewed locals (e.g., Kalnina, 2017c) or can be encountered in the reports on various events or developments, such as town festivals (Balandina, 2017; Kalnina, 2017d), sports and health events (Ezerzeme, 2017; Trede, 2017a), or reconstructions of public infrastructure (Liesma, 2017; Jūrmalas vards, 2017). On the other hand, the newspapers are not oblivious to the fact that many towns and villages in Latvia experience depopulation and other social and economic long-term challenges. "Liesma" in particular has stressed the lack of jobs in Mazsalaca (e.g., Kalnina, 2017b); other media also have acknowledged

a substantial loss of the local population during the last decades. Moreover, since none of the analysed places is a regional centre, the sense of periphery is evident in references to sub-optimal public transport schedules (Kalnina, 2017b) and the unavailability of banking (Plaude and Trede, 2017) or other services.

Thus, the depiction of the social environment has to accommodate these two experiences, which are in conflict with one another. Usually this is achieved by avoiding the mentioning of problems in articles that praise the local environment or by stressing that the locals appreciate their town despite some hardships — or that they are doing something about them. For example, "Liesma" reports that the local inhabitants of Mazsalaca are developing new sources of revenue and becoming entrepreneurs (Kalnina, 2017e). Overall, the newspapers are more appreciative than critical of the places they cover. The criticism commonly is about particular details of the local environment — from the lack of benches near houses (Trede, 2017b) to handling hooliganism (Nipane, 2017), to unemployment (Kalnina, 2017a). Conversely, the praise is aimed at the enjoyable and unique characteristics of the place (such as nature and cultural heritage) and the opportunities it offers.

"Human beings are seen as living in a world of meaningful objects," states Herbert Blumler (1966: 540). "Different groups come to develop different worlds — and these worlds change as the objects that compose them change in meaning." In their interpretation of Herbert Blumer's ideas, Greider and Garkovich (1994) stressed that it is not the change of the physical environment that causes changes in how groups see their landscapes. The change is driven by the shift of meanings a group attaches to these transformations. In the case of the studied newspapers, they take notice of various local problems and unwelcome changes, but do not interpret them as undermining the core qualities of the particular places.

People, surroundings and events. Depictions of the local landscapes require local people within their institutional or infrastructural surroundings. Schools, cultural centres, libraries, parks, and open-air leisure areas are among the commonly presented territories against the backdrop of which various activities are being described. Schools are mentioned not only in the context of education opportunities of young people, but also as places where various cultural, learning, and sports events for much wider public are held. For example, in the stadium of the Kemerī primary school, the national combined competition for dogs took place (Pavlovskis, 2017), and in Kraslava, the school is said to host Latvian-Polish culture events (Goncarovs, 2017b). Teachers as key culture workers of the covered places and students' achievements also are common topics of the articles.

The various annual festivals are among the most widely covered topics that are virtually universal in the analysed newspapers. Through these festivals, as well as the events with participation of local and national level activists or culture workers — authors, actors, entrepreneurs, benefactors —, the newspapers depict at least somewhat vibrant social life that is interesting not only to the local public but also to guests from elsewhere.

Notable social groups are young people and seniors. The attention they achieve in the newspapers probably at least partly depends on the activities of respective organizations themselves and the attention they manage to attract. Thus, "Neatkarīgas Tukuma zinas" regularly reports on the activities and events organized by youth centre "Nagla" (e.g., Trede, 2017d; Trede, 2017e), while "Ezerzeme" has informed about the "The school of seniors" (Azamatova, 2017) — a free training program for retired people.

The newspapers vary greatly in their coverage of the municipal councils. "Neatkarigas Tukuma zinas" reports in detail the topics discussed during the sessions of the council and occasionally interviews the local officials. "Ezerzeme" writes about the meetings between the chair of the council and the inhabitants of Kraslava, although it generally pays relatively small attention to the activities of the workings of the municipal offices. "Jurmālas vārds" takes notice of the political divisions within the council, which arguably are much more pronounced than in other studied municipalities, and puts larger emphasis on naming and depicting the local politicians. "Liesma," on the contrary, pays small attention to the agenda of the municipal council of Mazsalaca. Thus, rather than watching or, worse, serving the local officials, some papers distance themselves from the decision-making processes that shape other processes these media subsequently report on.

Belonging and identity. The local newspapers communicate affection of the geographical territories they cover. The articles that contain favourable statements about the place, which usually are expressed through the quotes of the interviewed people, are the clearest examples of shaping the meanings that media attach to the environment. The affection stems from a long-term connection with the place, rather than a detached assessment of the prospects, resources, or deficiencies. For example, "Neatkarigas Tukuma zinas" relays what it calls a commonly held view among participants of a certain event: "... people are proud of the place they come from (in this case — in Kandava), they take pleasure in doing their job, but sometimes underestimate their contributions." (Trede, 2017f). In one publication, "Liesma" states that some families of Mazsalaca "have been taking root here for centuries" (Kalnina, 2017f).

Additionally, the newspapers stress the importance of the local history and cultural heritage. In Kemerī, this is expressed through somewhat nostalgic acknowledgement that its curative industry has yet to match its past glory, and at least until now, the plans of its redevelopment have been coming to life quite slowly (e.g., Zīnu dienests, 2017a). Historical buildings, such as a manor (Kalnina, 2017f) and a church (Jakubovskis, 2017), and local legends and folklore characters, for example, the one about the devil/trickster (Kalnina, 2017g), are among the highlighted local peculiarities.

Although praises to the qualities of the place are present in all analysed newspapers, "Ezerzeme" stands out with its at times amusingly excited descriptions of Kraslava. For example, "The second Switzerland, the pearl of Latgale, a town by the Curves of Daugava... All these high-sounding and lyrical lines describe our beloved Kraslava. And is it not that this touching name has derived from the word "beauty" ("krasa" in Russian)?" (Goncarovs, 2017c).

Borders. Each delineated territory inevitably has borders that separate the area from the rest of the country and the world. The analysed newspapers cover events and topicalities of multiple adjacent administrative territories, which form and reinforce the sense of them as distinct social and geographical entities. Thus, the people who read "Neatkarigas Tukuma zinas" are likely to see Tukums, Kandava, Engure, and Jaunpils municipalities as belonging together, so does the readers of "Liesma", which addresses the inhabitants of Valmiera, Rujiena, and Mazsalaca.

The examined newspapers vary in the degree to which they incorporate "outside" territories in their coverage. One approach is the inclusion of some national and even international news and perspectives in their coverage — for example, political commentaries and travel features. Another approach is to highlight the qualities of the place that makes it stand out in the national or even international context. For example, Mazsalaca hospital reportedly was among the first medical facilities in Latvia to develop specialization in palliative care (Kalnina, 2017h) and has the popular

Skanaiskalns nature trail (Kalnina, 2017i), while the resort and rehabilitation centre "Jaunkemeri" still enjoys the good reputation (Zinu dienests, 2017b) it developed during the Soviet times and attracts clients not only from Latvia, but also from other, particularly CIS, countries. Still, the prevalence of local topicalities, attention given to the local territories, and orientation towards the local population that can be expected in such media outlets maintain an "us" and "them" construction in which each party at the opposing sides of the border is belong to different inhabited places and social groups.

Particularly notable counter-examples can be found in "Ezerzeme," which, while acknowledging the regional peculiarity of Kraslava, simultaneously stresses the ethnic and cultural diversity (Leikuma, 2017) that historically characterizes the Latgale region of Latvia. The newspaper also pays more attention to the development of international ties of various kinds, including friendships with people from other countries (Zdanovska, 2017) and cross-border cooperation between local level institutions (Goncarovs, 2017d).

Conclusions

Through the analysis of the most prominent elements that describe the four populated places in Latvia, this paper has examined the themes through which the local media present the local landscapes. This section lists the main takeaways from this study.

- 1) The interpretations of the dominant topics in the examined newspapers present a positive concept of the places. Even though the media mention a variety of long-term challenges, such as unemployment or depopulation, the publications generally focus on the elements that highlight local qualities, such as cultural life, historical heritage and other elements that in their eyes make the place valuable to the locals and interesting to its guests.
- 2) The sense of possible or even ongoing decline of the place is countered by describing qualities that are unavailable in other places. The media refer to the analysed places as beautiful, having a small town charm, and also having a development potential in the future. Subsequently, economic or social challenges per se do not necessarily determine how the media or the locals see their landscapes. In the analysed newspapers, acknowledgements of local problems are overwhelmed by the references of local qualities, which are said to be unavailable elsewhere, and the special relationship the local population has with the place.
- 3) The editorial choices, which contribute to the emergence of particular landscapes in the media content, are most evident in the differences of how certain topics are presented. One such topic is politics. "Neatkarīgas Tukuma ziņas" and "Jūrmalas vārdi" pay considerable attention to the local politics and activities of municipal officials, even though their approaches to this topic have considerable differences. "Ezerzeme" and "Liesma," on the contrary, seem to be less interested in the inner workings of the Kraslava and Mazsalaca municipal council, respectively. At this point, we can only wonder whether the avoidance of particular themes is a deliberate approach some newspapers take to maintain their self-defined equilibrium between highlighting things that affect the quality of life in the particular place and maintaining the view on the place as special and attractive.
- 4) The analysed newspapers are more willing to discuss practical deficiencies of the place and suggest improvements than the official newsletters issued by most municipalities in Latvia, which are employed as public relations tools (Bucholtz, 2017). Thus, the local newspapers are more likely to fulfil the journalistic watchdog role more effectively. At the same time, these

media outlets vary greatly in their willingness to probe the various social, economic, and political issues of the place, which, in the absence of media attention, may remain invisible to the local public.

- 5) The limited scope of the study does not allow for broader generalizations about the local mediated landscapes in Latvia. However, it has shown some similarities with and differences from the previous research on the contents of Latvian local media. Zelce (2006) noted that local newspapers in Latvia pay attention mostly to cultural events, everyday life, and politics, but economy-related themes are less prominent. The present study shows that culture and everyday activities indeed are among the most widely discussed. However, although local economy usually is not addressed directly — for example, through the analysis of statistical data —, implicitly it is present within the important themes of depopulation, unemployment, entrepreneurship, and agriculture.

Acknowledgements

This work was supported by the project No. 5.2. of the Latvian National Research Program, "Economic Transformation, Smart Growth, Governance and Legal Framework for the State and Society for Sustainable Development — a New Approach to the Creation of a Sustainable Learning Community (Ekosoc-LV)" and is part of the sub-project No. 2.5.8, "The processes of the development of cultural environment, preservation of environmental diversity and urbanization in the context of balanced development of Latvia."

Bibliography

1. Aldridge, M. (2007). *Understanding the Local Media*. Maidenhead: Open University Press.
2. Balandina, A. (2017). Kemeru svetkiem negaisi met likumu (Thunders Bypass Kemeru Festival). *Jurmalas vards*, No. 31 (212), 2–3pp.
3. Balode, L. (2017). Pasvaldību informatīvie izdevumi un reģionālie mediji. Strupcels (Municipal Bulletins and Regional Media. Dead End). *LV portals "Par likumu un valsti"*. Retrieved: <http://www.lvportals.lv/visi/likumi-prakse/287181-pasvaldibu-informativie-izdevumi-un-reģionalie-mediji-strupcels/> Access: 01.01.2018.
4. Berger, P. L., Luckmann, T. (1971). *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. New York: Anchor Books.
5. Blumer, H. (1966). Sociological Implications of the Thought of George Herbert Mead. *American Journal of Sociology*, Volume 71, Issue 5, pp. 535–544.
6. Bohm, A. (2009). Theoretical Coding: Text Analysis in Grounded Theory. In U. Flick, E. von Kardorff & I. Steinke (Eds.), *A Companion to Qualitative Research*. London: Sage Publications, pp. 270–275.
7. Brikse, I., Zelce, V. (2008). The Latvian Media in the New Millennium: Trends in Development, Content and Usage and the Emergence of a Community of Media Users. *Informacijos mokslai/Information Sciences*, Volume 47, pp. 87–111. Retrieved: <http://www.zurnalai.vu.lt/files/journals/163/articles/3339/public/87-111.pdf> Access: 01.01.2018.
8. Bucholtz, I. (2017). Environmental Communication in Latvian Municipal Newsletters. In *Environment. Technology. Resources: Proceedings of the 11th Scientific and Practical Conference, Vol. 1*. Rezekne: Rezekne Academy of Technologies, pp. 46–50. Retrieved: <https://www.researchgate.net/publication/317604179> Access: 01.01.2018
9. Cepkauskaite, A., Krutaine, A., Matsalu, E., Spakovska, E. (2015). *Baltic Media Health Check 2014–2015*. Retrieved: http://www.sseriga.edu/files/content/baltic_media_health_check_2014-2015.pdf Access: 01.01.2018.
10. CSB (2017). Area, population density and resident population by statistical region, city and county. *Central Statistical Bureau of Latvia*. Retrieved: <http://ej.uz/csb2017> Access: 01.01.2018.
11. Deuze, M. (2009). The Media Logic of Media Work. *Journal of Media Sociology*, Volume 1, Issues 1&2, pp. 22–40.
12. Ezerzeme (2017). Veselības svētku programma (The Schedule of Health Festival). *Ezerzeme*, No. 52 (9151). p. 2.
13. Glaser, B. G., Strauss, A. L. (2006). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New Brunswick: Aldine Transaction.
14. Goncarovs, A. (2017a). Diena laukos — lietaina, tūcu vertīga un interesanta (A Day in Countryside — Rainy, but Valuable and Interesting). *Ezerzeme*, No. 54 (9153), p. 3.

15. Goncarovs, A. (2017b). Polu regate jeb neparastas brīvdienas (Polish Regatta or the Extraordinary Holidays). *Ezerzeme*, No. 64 (9163), p. 5.
16. Goncarovs, A. (2017c). Kad sapni piepildas (When Dreams Come True). *Ezerzeme*. No. 80 (9179), p. 1.
17. Goncarovs, A. (2017d). Pierobežas sadarbība paplašinās (Cooperation in the Border Area Widens). *Ezerzeme*, No. 90 (9189), p. 3.
18. Greider, T., Garkovich, L. (1994). Landscapes: The Social Construction of Nature and the Environment. *Rural Sociology*, Volume 59, Issue 1, pp. 1–24.
19. Gupta, A., Ferguson, J. (1997). Culture, Power, Place: Ethnography at the End of an Era. In A. Gupta & J. Ferguson (Eds.), *Culture, Power, Place: Explorations in Critical Anthropology*. London: Duke University Press, pp. 1–32.
20. Jakubovskis, A. (2017). Sveta Ludviga baznīcai 250 gadi: pirma diena (divas izstādes un konference) (The 250th Anniversary of St. Ludwig Church: The First Day (Two Exhibitions and a Conference)). *Ezerzeme*, No. 50 (9149), pp. 1–3.
21. Jenkins, H. (2006). *Convergence Culture: Where Old and New Media Collide*. New York University Press: New York.
22. Jurmalas vards (2017). Iedzīvotāji aicināti precīzēt pievadu izbuves vietas (Inhabitants are Asked to Report Where Inlets Should Be Built) *Jurmalas vards*, No. 46 (227), p. 2.
23. Kalnina, I. (2017a). Novada trūkst darba vietu (The County Lacks Jobs). *Liesma. Dzīves vide Ziemeļvidzemē — musu kopeja telpa*, November 16, p. 1.
24. Kalnina, I. (2017b). Galvenais resurss ir zeme (The Main Resource is the Land). *Liesma. Dzīves vide Ziemeļvidzemē — musu kopeja telpa*, December 28, p. 3.
25. Kalnina, I. (2017c). Kada ir Mazsalaca un vietejie? (What is Mazsalaca and Its Population Like?) *Liesma. Dzīves vide Ziemeļvidzemē — musu kopeja telpa*, October 26, p. 3.
26. Kalnina, I. (2017d). Svetki Selu muižā (Festival at the Seli Manor). *Liesma*, August 3, p. 6.
27. Kalnina, I. (2017e). Atradusi dāmo (They Have Found Something to Do). *Liesma. Dzīves vide Ziemeļvidzemē — musu kopeja telpa*, December 28, p. 4.
28. Kalnina, I. (2017f). Mazpilsētas sarmes cauri gadsimtiem (The Small Town Charms throughout the Ages). *Liesma. Dzīves vide Ziemeļvidzemē — musu kopeja telpa*, October 26, p. 3.
29. Kalnina, I. (2017g). Savādais velnu stāsts (The Strange Story of Devils). *Liesma. Dzīves vide Ziemeļvidzemē — musu kopeja telpa*, October 26, p. 4.
30. Kalnina, I. (2017h). Iet pa attīstības ceļu (Going the Way of Development). *Liesma. Dzīves vide Ziemeļvidzemē — musu kopeja telpa*, December 7, p. 3.
31. Kalnina, I. (2017i). Dabas milotāju tikšanās vieta (The Meeting Place for Nature Lovers). *Liesma. Dzīves vide Ziemeļvidzemē — musu kopeja telpa*, October 26, p. 4.
32. Leikuma, I. (2017). "Pi vina galdā" ("At a shared table"). *Ezerzeme*, No. 96 (9195), p. 2, 4.
33. Liesma (2017). Parvads tiek parbuvēts (Overpass is Being Reconstructed). *Liesma*, October 5, p. 6.
34. Livina, A., Veliverronena, L., Kruzmetra, Z., Grinfelde, I., Buholcs, J., Smalinskis, J., Vasile R. (2016). Kultūras mantojuma lietojums reģionu līdzsvarotā attīstībā (The Use of Cultural Heritage in the Balanced Development of Regions). *Latvijas Zinātņu akadēmijas vestis, A daļa*, Volume 70, Issue 3, pp. 91–101.
35. Locmele, K. (2014). Lauku diskurss prese latviešu valodā Latvija (1989–2012): Promocijas darbs (Rural discourse in the Latvian Language Press of Latvia (1989–2012): Doctoral thesis). Rīga: Latvijas Universitātes Sociālo zinātņu fakultāte. Retrieved: https://www.szf.lu.lv/fileadmin/user_upload/szf_faili/Petnieciba/Locmele_Klinta_2014.pdf Access: 01.01.2018.
36. Luhman, N. (2000). *The Reality of Mass Media*. Stanford: Stanford University Press.
37. Morley, D. (2000). *Home Territories: Media, Mobility and Identity*. London: Routledge.
38. Nipane, M. (2017). Iespeja aktualizēt problēmas (An Opportunity to Point out Issues). *Ezerzeme*, 82 (9181), p. 2.
39. Pavlovskis, I. (2017). Nacionālās sunu daudzcināšanas pasākums noritēja azartiski (National Event of Combined Dog Sports Was Venturesome). *Jurmalas vards*, No. 31 (212), p. 3.
40. Plaude, I., Trede, L. (2017). Pēc deviņiem gadiem deputāts (After Nine Years of Being a Deputy). *Neatkarīgās Tukuma ziņas*, No. 118 (2591), pp. 4–5.
41. Rozukalne, A. (2012). Media Audience Development in Latvia (2004–2012). *Media Transformations*. Vol. 6, pp. 144–157.
42. Spakovska, R., Jemberga, S., Krutaine, A., Springe, I. (2014). *Is There Life After the Crisis? Analysis of the Baltic Media's Finances and Audiences (2008–2014)*. Retrieved: <https://en.rebaltica.lv/2014/11/estonias-media-are-healthiest-in-the-baltics/> Access: 01.01.2018.
43. TNS Latvia (2017). Nacionālā preses auditorijas pētījuma rezultāti 2017. gada rudenī (The Results of the National Press Audience Study in the Autumn 2017). *Kantar TNS*. Retrieved: <http://tns.lv/?lang=lv&fullarticle=true&category=showuid&id=5202> Access: 01.01.2018.
44. Trede, L. (2017b). Bus nauda, bus solīni (If There Will Be Money, There Will Also Be Benches). *Neatkarīgās Tukuma ziņas*, No. 148 (2621), p. 5.
45. Trede, L. (2017f). But savas dzīves noteicējam (To Be the Master of One's Own Life). *Neatkarīgās Tukuma ziņas. Laiks uzņemjam*, No. 124 (2597), p. 2.

46. Trede, L. (2017d). Diskusijas par jauniesiem svarīgām lietām (Discussions about Things Important to the Youth). *Neatkarīgās Tukuma ziņas*, No. 106 (2579), p. 5.
47. Trede, L. (2017e). Notiks jauniesu forums (Youth forum to be held). *Neatkarīgās Tukuma ziņas*, No. 151 (2624), p. 5.
48. Azamatova, T. (2017). Senioru skolas vasaras jaunumi (News from the Summer School for Seniors). *Ezerzeme*, No. 56 (9155), pp. 1–2.
49. Trede, L. (2017a). Sporta diena 2017 (Sports Day 2017). *Neatkarīgās Tukuma ziņas*. No. 112 (2585), p. 5.
50. Vilnītis, J. (2017). "Latvenergo" atradis domubiedru Jūrmalas dome (Latvenergo Has Found an Ally in Jūrmala City Council). *Jūrmalas vards*, No. 27 (208), pp. 1–2.
51. Zdanovska, N. (2017). "Mes atradam viena otru" ("We Found Each Other"). *Ezerzeme*, No. 88 (9187), p. 5.
52. Zelce, V. (2006). Lokālā prese — kopienu informācijas vides veidotāja (Local Press — the Shaper of the Community Information Environment). In I. Brikse (red.), *Informācijas vide Latvijā: 21. gadsimta sākums* (*Information environment in Latvia: The beginning of the 21st century*). Rīga: Zinātne, pp. 144–166.
53. Zinu dienests (2017a). Noslēdzies Kemeru dabas turisma centra un parka labiekārtojuma metu konkurss (The Sketch Contest on the Development of Kemeru Nature Tourism Centre and Park Has Concluded). *Jūrmalas vards*, No. 41 (222), p. 6.
54. Zinu dienests (2017b). Rehabilitācijas centru "Jaunkemeri" — 50! (50th Anniversary for the Rehabilitation Center "Jaunkemeri"). *Jūrmalas vards*, No. 30 (211), p. 1, 12.

CROSS-BORDER COOPERATION IN RURAL TERRITORIES IN CONTEXT OF THE EU FUNDS: CASE OF LATVIA-ESTONIA-RUSSIA BORDER AREA

Santa Daume¹, PhD Cand.

¹University of Latvia

Abstract. Cross-border cooperation (CBC) has become an object for academic debates during the last decades, mostly because of open border policy in the European Union (the EU) and because of spatial and social changes it has created. To analyse role of the EU funded activities on promoting CBC in Latvia-Estonia-Russia border area, two case studies were selected – Aluksne Region in Latvia as a main case and Voru County in Estonia as a satellite case.

Main findings reveal that the EU open borders and cohesion policy have an important role in promoting formation of CBC. The main influence of the EU is related to financial support of CBC projects, which is also considered to be the main precondition for creating CBC in the Latvia-Estonia-Russia border area. It coincides with other research works done in different regions across Europe.

Key words: cross-border cooperation, regional development, the EU funding, Latvia-Estonia-Russia border.

JEL code: R58

Introduction

Despite the development of regional policy and efforts to resurrect rural regions, regional development indicators (business activity, population, availability of services, employment, development of innovations etc.) in Latvia still show too great disproportions between both planning regions and municipalities comparing to other EU countries (The Ministry of Environmental Protection and Regional Development of the Republic of Latvia, 2013). This leads scholars to re-evaluate approaches for territorial development. Aim of this paper is to discuss impact of the EU funded activities on international CBC and its outcome. Research object – cross-border cooperation. Accordingly, research tasks are: to operationalize the concept of CBC; to reveal if the EU funding is being used in studied area in context of CBC.

Borders' policy has an important role in CBC and mobility. Professor of political science Serghei Golunov studying the EU and Russia relations has discovered that strict conditions for border crossing and troublesome border crossing hinder mutually beneficial cooperation – trade, tourism, culture and other (Golunov S., 2013). It cannot be denied that troublesome border crossing (the EU external borders) has influence on formation of CBC, as well as on creating conditions that differ from the EU internal border and thus has influence on regional development.

A case of Latvia-Estonia-Russia border area is interesting for an academic study because region includes both the ES internal (Latvia-Estonia) and the ES external (Latvia-Russia; Estonia-Russia) borders. It is attractive also because of options for border crossing and potential for CBC.

Research results and discussion

1. Concept of Cross-Border Cooperation

The Council of Europe defines CBC as "concerted process of building neighbourly relationships between local stakeholders and authorities on either side of a border, with a view to overcoming such problems and fostering harmonious development of neighbouring communities" (The Council of Europe, 2012). However, further operationalization is required to use the concept of "cross-border cooperation" as a basis for theoretical analysis. Four main aspects of CBC can be detected:

- 1) as main leaders of CBC usually are public authorities, it must be analysed within a framework of public agency;

¹ Mob: +371 26633506, e-mail: santa.daume@gmail.com

- 2) CBC is usually referred to sub-national local authorities, who normally do not have rights to conclude international contracts according to the international law. That is why usually CBC is rather based on informal or semi-formal agreements;
- 3) the aim of CBC commonly is related to solving some practical issues concerning all parties involved;
- 4) CBC involves stabilization of contacts – it can manifest, for example, as establishing of a cross-border institution (Perkmann M., 2003).

Summarizing these aspects, the basis of CBC includes – public nature of cooperation, a role of sub-national local authorities, solving practical issues and importance of stability of cross-border contacts.

According to the Council of Europe, the main aims to create CBC in border areas are:

- 1) to promote the socio-economic development of the border area (for example, to attract financial support);
- 2) to improve employment opportunities, to use the own resources and capital of regions in an efficient way etc.);
- 3) to develop and provide better services (for example, health-care, education, transport infrastructure etc.);
- 4) to widen cultural perspectives (for example, to promote bilingualism, cultural diversity, a non-ideological interpretation of history and mutual knowledge and trust etc.) (The Council of Europe, 2012).

One of the main triggers for CBC and emergence of cross-border regions in the European countries is the EU regional and cohesion policy already since 1989, and it is the most funded instrument – the INTERREG Community Initiative. Its purpose has been to reduce a barrier among countries and to achieve goals of the European Spatial Development Perspective (The ESPON, 2007). CBC within the framework of the INTERREG financial instrument can be implemented among the EU countries only, as well as involving countries outside the EU. Availability of this practical financial instrument creates both economic and social conditions for emergence of financial support for newly created cross-border cooperation; understanding of CBC process and communication; as well as agreement on common goals to be achieved as a result of cooperation.

As researcher of political and social sciences Luis de Sousa points out, the EU regional and open borders policy and integration have had instant, as well as sustainable outcome. Opening of the most of the EU's internal borders can be considered as an instant result, while creation of suitable conditions for CBC and innovation can be considered as a long-term and sustainable result of the EU actions (de Sousa L., 2013). CBC can be perceived as a process where parties involved and their representatives interact to achieve desirable and expected results or to optimize and use efficiently the own resources of territories. Several academic disciplines during the time have tried to explain CBC without paying attention to social transactions or importance of building productive relationships and social networks. However, cooperation must be perceived as "investment in contacts and relationships that represent opportunities that could promote social and economic integration in present and future times" when studying formal or informal cross-border relations (Gonzalez-Gomez T. & Gualda E., 2014).

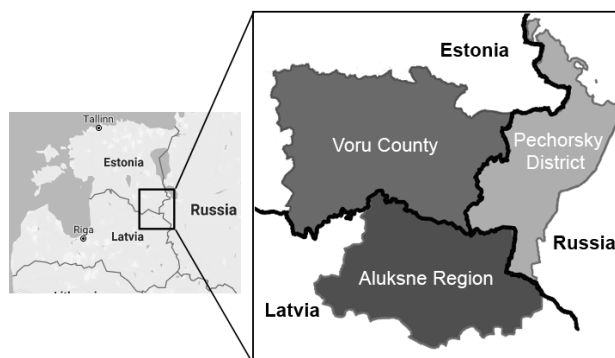
Analysing CBC in Euroregions, Polish sociologists Joanna Fratzczak-Muller and Anna Mielczarek-Zejmo conclude that CBC and the border aspect have a crucial role in development of local communities (Fratczak-Muller J. & Mielczarek-Zejmo A., 2016). In context of global changes,

diverse regional development and the EU cohesion and borders policy, capability of regions to adapt and restructure are crucially important. Successful development of rural regions in Europe is related exactly to CBC to a large extent – investments and CBC projects in all possible areas, improvement of infrastructure (both cross-border and in the central part of the state), CBC in academic level (universities, research facilities) are few of characteristics of successful rural territories (AEBR, 2008b). Also social aspects, as experience of parties involved, informal social networks, language knowledge, as well as personal involvement of local inhabitants have a significant role in creating successful CBC. Whereas, dynamics, extent and field of CBC depend on ideas and commitment of parties involved, on skills and capacity of local authorities, as well as on institutional support and recognition of local community (Fratczak-Muller J. & Mielczarek-Zejmo A., 2016).

Although a lot of efforts to promote CBC in Europe have been made during the last decades, there are still a lot of challenges to achieve a sustainable and proven model of cooperation, which would contribute to development and improvement of economic, as well as social, political, cultural and environmental issues of border regions via CBC (Castanho R., Loures L., Fernandez J. & Pozo L., 2016).

2. Data and methods

Latvia and Estonia joined the EU in 2004. Estonia in 2011 and Latvia in 2014 both entered the Eurozone and started using euro as a currency. Since 2007, when both countries entered the Schengen Agreement, Latvia-Estonia has lifted a mutual border control. Although inhabitants of the border area have eased conditions for Russia's border crossing and they do not necessary need to receive a visa, they still face annoyance to cross the border (The Cabinet of Ministers of the Republic of Latvia, 2010).



Source: author's created

Fig. 1. **Studied area**

Municipality of Aluksne Region has signed several cooperation agreements with cross-border municipalities in Estonia and Russia and with other public or private bodies. The main goal of CBC is to attract the EU or other international funds for promoting development of all parties involved (The Municipality of Aluksne Region). Two or three sided cooperation including Aluksne Municipality has implemented projects mostly using the INTERREG instrument funded by the European Commission (<http://www.interregeurope.eu/>).

Fourteen semi-structured interviews with local stakeholders and inhabitants of both sides of the border were conducted during May 2016 and July 2017 to obtain empirical data. In addition, quantitative survey of 200 inhabitants of Aluksne Region was carried out during December 2016.

3. Results

To better understand impact of the EU funded activities on CBC in Latvia-Estonia-Russia border area, it's important to briefly describe the context of different conditions created by the EU internal (Latvia-Estonia) and external (Latvia-Russia) border. When explaining the conditions created by close proximity of border both inhabitants and experts use comparison between the EU internal and external border to point out differences created by each of them. For example:

"Closed border – it's a loss, if opened – it's a benefit, because it is also cross-border cooperation. Economic benefit can be gained definitely when cooperating across the border." (Vitola D., 2017).

Also inhabitants have perceived differences created by both borders – 68 % of respondents of quantitative survey are convinced that borders of Estonia and Russia each creates different conditions for development of Aluksne Region. Majority (70 %) of respondents admit that close proximity of Estonian border positively influences the economic development of Aluksne Region. While regarding close proximity of Russian border – less than a half (44 %) of respondents think that it positively influences the economic development of the territory (Daume S., 2016).

Although border regions of Latvia-Estonia border have CBC also with neighbours in Russia, cooperation between border territories of Latvia-Estonia border and between its inhabitants is more frequent. The main reason for this is the EU internal border policy, which makes cross-border mobility more convenient. Based on survey data, 91 % of all respondents have visited Estonia during the past three years and 45 % of them have had any type of cooperation or direct contacts with inhabitants of Estonia (including CBC projects, personal contacts, business contacts etc.). While only 27 % of respondents have visited Russia during the past three months and only 24 % have had any type of cooperation or direct contacts with inhabitants of Russia. Inhabitants, as well as local executives are aware and assess advantages of the open borders policy – cooperation and mobility at individual, as well as institutional level is possible without specific border-related requirements. Despite the differences in conditions created by borders, CBC are evaluated mostly positively regardless of the direction between which countries it is being implemented (Vartukapteine I., 2016; Vitola D., 2016; Gotmans J., 2016; Mark J., 2016; Vahter B., 2017; Tali T., 2017; Prizavoite A., 2017; Dukulis A., 2017). At the same time, the researcher must be cautious to make persuasive and strict conclusions about the desired highly developed CBC in the future. Finnish social anthropologist Laura Assmuth a decade ago pointed out that there are social groups (entrepreneurs, intellectuals, regional and the EU bureaucrats) in the Latvia Estonia-Russia border area, which have "high hopes for this area becoming an international crossroads instead of a 'back pocket' of three strictly separate states" (Assmuth L., 2006).

The main reasons why CBC could be beneficial are challenges and areas for development in both sides of the border are the same (mostly workplaces and transport infrastructure), so they could be solved and developed efficiently by working together and sharing knowledge and experience (Vartukapteine I., 2016; Raidma M., 2016; Vahter B., 2017); it creates more opportunities to raise the EU or other international funds when more than one country is involved (Mark J., 2016; Prizavoite A., 2017).

The EU cohesion policy and one of its main goals – territorial cooperation in Europe – can be considered as one of the most crucial preconditions to create CBC both within borders of the EU and outside it. Although municipalities, NGOs and other organizations, as well as entrepreneurs can

take part in CBC programs funded by the EU, in the case of Latvia-Estonia-Russia border area local municipalities have been the most active partners implementing both two and three sided cooperation. In the previous 2007 – 2013 planning period entrepreneurs and NGOs did not take part very actively, mainly because of procedures required including finance control and audit. Also because of time needed to prepare proposal, but without confidence about confirmation of the project (Nikopensius, 2017). Current CBC programs are active until 2020, so it's too soon to make conclusions about their results.

The EU funding promotes CBC, as well as creates new opportunities for more attractive local living environment (Vahter B., 2017; Sarmite, 2017). In the previous planning period of 2007 - 2013, specifications and fields of supported projects were broader and without many restrictions, but in the latest planning period (2014 – 2020) priorities of industries are being set.

Stakeholders from both Aluksne Region and Voru County admit that by large extent territorial development can happen because of the EU financial support in framework of CBC programs, for example, renovation of buildings owned by local municipality, new objects construction, purchase of technical equipment, transport and other technological devices required for maintenance of territory, development of tourism objects, as well as organizing culture and sport events (Raidma M., 2016; Mark J., 2016; Vahter B., 2017; Dukulis A., 2017; Rozite M., 2017). Chairman of Council of Aluksne Municipality is convinced that EST-LAT CBC program is the tool which can help to smooth out an unequal development between centre and border area of the state (Dukulis, 2017).

Benefits of the EU funded CBC programs manifest not only as reaching a certain goal of a project, but also as giving opportunity for wider society to gain economic benefits, for example, to realize products of local crafters or local SME within the framework of CBC, and as creating and maintaining international social ties and communication. The interviewed stakeholders admit that newly formed social ties and networks are very important to identify common problems, to set goals and to exchange experience and knowledge to work more efficiently. One of the basic conditions for successful CBC is mutual trust, which generally occurs as a result of long-term cooperation and positive previous experience. Although the EU funding is the main precondition to create CBC in the first place, nevertheless sustainable social outcome can be identified – development of social networks and using newly formed social ties to discuss and to search for solutions for other challenges and interests beyond projects funded by the EU (Vahter B., 2017; Dukulis A., 2017; Rozite M., 2017; Gotmans J., 2016; Mark J., 2016; Raidma M., 2016; Prizavoite A., 2017).

Local amateur collectives, NGOs, as well as afterschool interest groups for pupils are usually involved in the ES funded projects in field of culture, as well as in other cross-border activities, which accordingly takes an important role in implementing CBC and in diversification of everyday life of local community. These local initiatives become a mediator between cross-border cooperation in institutional and individual level, because they promote engagement of local inhabitants into institutional level CBC between local municipalities or other partners. Especially this link can be observed in field of culture, because CBC in this field allows local inhabitants to take part into various international events (Rozite M., 2017; Vahter B., 2017; Vartukapteine I., 2016; Raidma M., 2016; Ede, 2016; Solveiga, 2017). This type of cooperation leads to development of new options for local inhabitants and further – to create more attractive living environment. This result of CBC can be considered as one of potential solutions to unresolved problem of inhabitants leaving peripheral territories of both Latvia and Estonia. The Head of

Department of Planning and Development of Voru County Municipality in Estonia directly relates the EU funded activities with more attractive living environment in rural territories:

"I am very happy about EST-LAT program. [...] Community is very small, here is not a lot of new everyday things, population can't go to theatre or cinema every day, thus daily entertainment offer is very small. But when there are projects which support cooperation between communities, it enriches their life. That increases quality of life and I think that it is very good. If there are no people, then there is nothing to develop." (Vahter B., 2017).

Still, some limitations of the EU funded activities can be identified in case of Latvia-Estonia-Russia CBC nowadays. CBC within studied area in Latvia-Estonia-Russia border area is not as frequent as it was a few years ago. The main reason for that is the end of activities funded by the INTERREG IIIC program in 2008. A large part of CBC projects has been related to renovation, construction or improving infrastructure, but along with changes in the EU funding options, nowadays financial support can be received more frequent for projects related to social aspects of territory or local community (for example, learning experience exchange, conferences etc.) instead of construction, renovation and similar projects – this is the main reason, why CBC with involvement of local governments has decreased during the last years:

"Of course, it would be possible to cooperate more, but it is necessary to see, how much money, what are the options, where we can write a project. There are "soft" projects, seminars, because old Europe has already constructed, developed its objects in parishes, they want seminars, learning. But new Europe wants to invest, to construct, to renovate." (Raidma, 2016).

Another limitation can be identified in relation to change of the EU funding conditions and prioritizing the industries as mentioned above. Although for the latest planning period the focus of supported actions and industries are more determined as before, now there are limitations to receive funding for a wide range of projects the results of which would be useful for local community and individuals. In the latest program, culture and sport related projects are not supported, so there are not many projects which promote interaction and fellowship between the nations (Nikopensius, 2017). For 2014 – 2020 programs' period, there is separately divided Estonia-Latvia and Latvia-Russia CBC programs, because of different goals and mutual problems to be solved. Still, mission is similar for both – to promote development of both countries by using opportunities provided by CBC (INTERREG Estonia – Latvia; Latvia – Russia Cross-border Cooperation Programme). The main priorities for Estonia-Latvia program are:

- 1) active and attractive business environment;
- 2) clean and valued living environment;
- 3) better network of harbours;
- 4) integrated labour market (INTERREG Estonia – Latvia).

While the main priorities for Latvia-Russia CBC program are:

- 1) business and SME development;
- 2) environmental protection, climate change mitigation and adaptation;
- 3) promotion of border management and border security, mobility and migration management (Latvia – Russia Cross-border Cooperation Programme).

Closeness of CBC and long-term interaction is one of the main criteria to be measured in order to attract funds from the EU funded CBC programs.

Conclusions, proposals, recommendations

- 1) In this research paper, the author theoretically, as well as empirically analysed the concept and process of CBC and focused her analysis on role of the EU financing instruments on CBC. The EU cohesion and open borders' policy have promoted development of CBC by ensuring one of the most crucial preconditions for CBC – financial funding.
- 2) The EU financing instruments, as well as the EU cohesion and open borders policy directly, as well as indirectly influence development of border area and promote formation of international social ties.
- 3) The type of supported activities by the EU has an important role in sustaining CBC – changes of the EU funding programs in favour of projects which are rather focused on social activities (instead of projects of construction or infrastructure) have decreased overall CBC in border area of Latvia-Estonia-Russia.
- 4) On the one hand, cultural and long-term interaction is very important to promote development – also evaluation criteria for the EU funded projects confirms it, on the other hand, those case studies showed that there is still a need for funding construction and renovation projects, for which it is not necessary to have high level of cross-national interaction and establishing long term relations. Since the EU countries are in different stages of economic and social development, priorities for funding should be set based on level of countries' development and based on in-depth analysis of local needs.

This paper was funded by LU research project "PUBLIC HEALTH, QUALITY OF LIFE AND SUSTAINABLE NATION" (LU reg.Nr. ZD2016/AZ117).

Bibliography

1. AEBR (2008a). Cooperation Between European Border Regions, AEBR – NOMOS, Baden-Baden.
2. AEBR (2008b). Growing Regions, Growing Europe: Public Consultation on the Future of the EU Cohesion Policy, January 29, pp. 12. Retrieved: http://www.aebr.eu/files/publications/Association_of_European_Border_RegionsEN.pdf. Access: 06.02.2018.
3. Assmuth, L. (2006). Ethnic, National and Local Identities at Russia's Baltic Borders, p. 22. Retrieved: <https://research.utep.edu/LinkClick.aspx?link=008.pdf&tabid=24748&mid=80672>. Access: 06.02.2018.
4. Castanho, R., Loures L., Fernandez, J. and Pozo, L. (2016). Identifying Critical Factors for Success in Cross Border Cooperation (CBC) development projects, Habitat International, Retrieved: <http://dx.doi.org/10.1016/j.habitatint.2016.10.004>. Access: 08.11.2017.
5. Daume, S., Quantitative Survey of Inhabitants of Aluksne Municipality (N=200), conducted on December 2016.
6. De Sousa, L. (2013). Understanding European Cross-Border Cooperation: A Framework for Analysis, Journal of European Integration, 35 (6), pp. 669-687. Retrieved: <http://www.tandfonline.com.ezproxy.utlib.ut.ee/doi/pdf/10.1080/07036337.2012.711827?needAccess=true>. Access: 16.01.2018.
7. Dukulis, A., Aluksne County Municipality, interview on 7 July 2017.
8. Ede, inhabitant of Misso Parish, interview on 25 May 2016.
9. Fratzak-Muller, J. & Mielczarek-Zejmo, A. (2016). Cross-Border Partnership – the Impact of Institutions on Creating the Borderland Communities (the Case of Spree-Neisse-Bober Euroregion), Innovation: The European Journal of Social Science Research, 29 (1), pp. 77-97. Retrieved: <http://dx.doi.org/10.1080/13511610.2015.1098523>. Access: 16.01.2018.
10. Golunov, S. (2013). EU-Russian Border Crossing: The Dialogical Perspective, Geopolitics, 18 (4), pp. 933-953. Retrieved: <http://www.tandfonline.com.ezproxy.utlib.ut.ee/doi/pdf/10.1080/14650045.2013.789867?needAccess=true>. Access: 16.01.2018.
11. Gonzalez-Gomez, T. & Gualda, E. (2014). Cross-Border Networks in Informal and Formal Cooperation in the Border Regions Andalusia-Algarve-Alentejo and South Finland-Estonia, European Planning Studies, 22 (7), pp. 1407-1424. Retrieved: <http://dx.doi.org/10.1080/09654313.2013.789487>. Access: 22.01.2018.
12. Gotmans, J., Haanja Municipality, interview on 25 May 2016.

13. INTERREG Estonia – Latvia. Retrieved: <https://estlat.eu/en/about-estlat/interreg-estonia-latvia#>. Access: 22.01.2018.
14. Latvia – Russia Cross-Border Cooperation Programme. Retrieved: <http://latruscbc.eu/about-the-programme/objective-priorities/>. Access: 16.01.2018.
15. Mark, J., Rouge Municipality, interview on 25 May 2016.
16. Nikopensius, I., INTERREG Estonia-Latvia, interview on 7 March 2017.
17. Perkmann, M. (2003). Cross-Border Regions in Europe: Significance and Drivers of Regional Cross-Border Cooperation, *European Urban and Regional Studies*, 10 (2), pp. 153–171. Retrieved: <http://journals.sagepub.com.ezproxy.utlib.ut.ee/doi/pdf/10.1177/0969776403010002004>. Access: 16.01.2018.
18. Prizavoite, A., Aluksne County Municipality, Planning and Development Department, interview on 7 July 2017.
19. Raidma, M., Misso Municipality, interview on 25 May 2016.
20. Rozite, M., Cultural Center of Veclaicene, interview on 8 July 2017.
21. Sarmite, inhabitant of Voru County, interview on 8 March 2017.
22. Solveiga, inhabitant of Aluksne City, interview on 26 May 2016.
23. Tali, T., Voru County Development Agency, interview on 10 March 2017.
24. The Cabinet of Ministers of the Republic of Latvia (2010). Regulations No.468. Par Latvijas Republikas valdības un Krievijas Federācijas valdības vienosanos par Latvijas Republikas un Krievijas Federācijas pierobežas teritoriju iedzīvotāju savstarpējo braucienu vienkāršošanu, The Cabinet of Ministers of Republic of Latvia, Riga, May 25. Retrieved: <http://likumi.lv/doc.php?id=210807>. Access: 03.01.2018.
25. The Council of Europe (2012). Cross-Border Co-operation Toolkit, p. 134. Retrieved: <https://rm.coe.int/1680747160>. Access: 03.01.2018.
26. The ESPON (2007). Cross-Border Cooperation – Cross Thematic Study of INTERREG and ESPON Activities, ESPON, Interact, Luxembourg, p. 58. Retrieved: https://www.espon.eu/sites/default/files/attachments/Cross-Border_Cooperation_web.pdf. Access: 03.01.2018.
27. The Ministry of Environmental Protection and Regional Development of the Republic of Latvia (2013). *Reģionālās politikas pamatnostādnes 2013.-2019.gadam*, MEPRD, Riga, p. 95. Retrieved: http://www.varam.gov.lv/in_site/tools/download.php?file=files/text/att_planosanas_dok/RPD_2013_2019_Informativa_dala.pdf. Access: 03.01.2018.
28. The Municipality of Aluksne Region. Starptautiska sadarbība. Retrieved: http://www.Aluksne.lv/01_05.php. Access: 08.11.2017.
29. Vahter, B., Municipality of Voru County, interview on 8 March 2017.
30. Vartukapteine, I., Jaunlaicene, Ziemeļi and Veclaicene Parish, interview on 25 May 2016.
31. Vitola, D., Markalne and Pededze Parish, interview on 25 May 2016.

CHANGES IN EMPLOYMENT IN THE PRIMARY SECTOR ACROSS PREDOMINANTLY RURAL POLISH SUBREGIONS

Nina Drejerska¹, PhD

¹Warsaw University of Life Sciences

Abstract. Research on evolution of the economic structure is an important part of the state-of-the-art in economics. As basic indices indicating the significance of agricultural sector have been decreasing, it is important to study a role of the primary sector for employment. This is especially reasonable for rural areas. The main aim of the paper is to investigate transformation of employment structure across predominantly rural Polish subregions (NUTS 3), particularly, changes in employment in the primary sector. Data of the Central Statistical Office of Poland on the sectoral structure of employment in predominantly rural Polish subregions in 2010 and 2016 were applied for the shift-share analysis.

All predominantly rural subregions were characterized by relatively high rates of employment in the primary sector, both at the beginning as well as at the end of the investigated period. However, the primary and secondary sectors were characterized by negative values describing the industry-mix effect (IM), which indicates negative impact of subregional specialization – employment in these sectors grow slower comparing to the national average. There are only 10 (out of 31) subregions characterized by positive values of the regional shift effects (RS). Alongside with a negative industry-mix effect, it indicates that the primary sector was a poor performer nationally as a sector of employment but performance was better in these subregions than at the national level. Negative values both for IM and RS (21 subregions) indicate that the primary sector was a poor performer nationally as a sector of employment and even poorer in these subregions than at the national level.

Key words: primary sector, employment structure, predominantly rural region, shift-share analysis.

JEL code: C43, J21, J43, R11

Introduction

The main aim of the paper is to investigate transformation of employment structure across predominantly rural Polish subregions (NUTS3), particularly changes in employment in the primary sector. Research on evolution of economic structure, one of the major research area of economists in the post-war period, indicates a necessity to include sectoral specificity in the research programme of development economics referring to the works of Simon Kuznets. This Nobel prize winner in economic sciences states that economic sectors are characterized by different specificity of products, production and innovation processes, but also of working and living conditions of engaged persons (Grodzicki M., 2014).

A review of the state-of-the-art proves that some researchers study a general sectoral structure of employment (Hedlund M., Lundholm E., 2015), some focus on particular sectors (Klembowska D., 2012). It is not surprising that employment in the primary sector is most important in rural and least important in urban regions (European Commission, 2017); thus, this study focuses on employment in agriculture, forestry and fishing. Although it may be noticed, year by year, that basic indices describing the significance of agriculture for the world economy have been decreasing (Chrzanowska M., 2017), agriculture is still a very important sector of regional economies and as a result regional as well as local labour markets. However, the situation is diversified across Polish subregions (Drejerska N., Chrzanowska M., 2017). There are some predominantly rural subregions where the primary sector develops more dynamically than it is characterized by tendencies in changes of national accounts. In such a situation, a shift-share analysis can be useful to analyse differences between subregional and national growth rates (Markusen A.R., Nojonen H., Driessen K., 1991). In other words, this method permits comparison of growth in a specific sector of the economy in different regions. It was clearly formulated by Dunn (Dunn E. S., 1960), one of researchers who introduced the shift-share analysis to economic and spatial investigations.

The classical shift-share analysis assumes a three-component model of regional change, incorporating *national share* (NS), *industry mix* (IM), and *regional shift* (RS). Thus (Stimson R. J., Stough R. R., Roberts B. H., 2006):

$$\Delta e_i \equiv e_{i,t} - e_{i,t-1} \equiv NS_i + IM_i + RS_i \quad (1)$$

$$NS_i \equiv e_{i,t-1}(E_t/E_{t-1} - 1) \quad (2)$$

$$IM_i \equiv e_{i,t-1}(E_{i,t}/E_{i,t-1} - E_t/E_{t-1}) \quad (3)$$

$$RS_i \equiv e_{i,t-1}(e_{i,t}/e_{i,t-1} - E_t/E_{t-1}) \quad (4)$$

$$e_{i,t} \equiv e_{i,t-1} + (NS_i + IM_i + RS_i) \quad (5)$$

Where:

e_i and E_i respectively are regional and national employment in industry i ;

e and E respectively are regional and national total employment in all industries;

$t-1$ is the initial period and t the end period of the analysis.

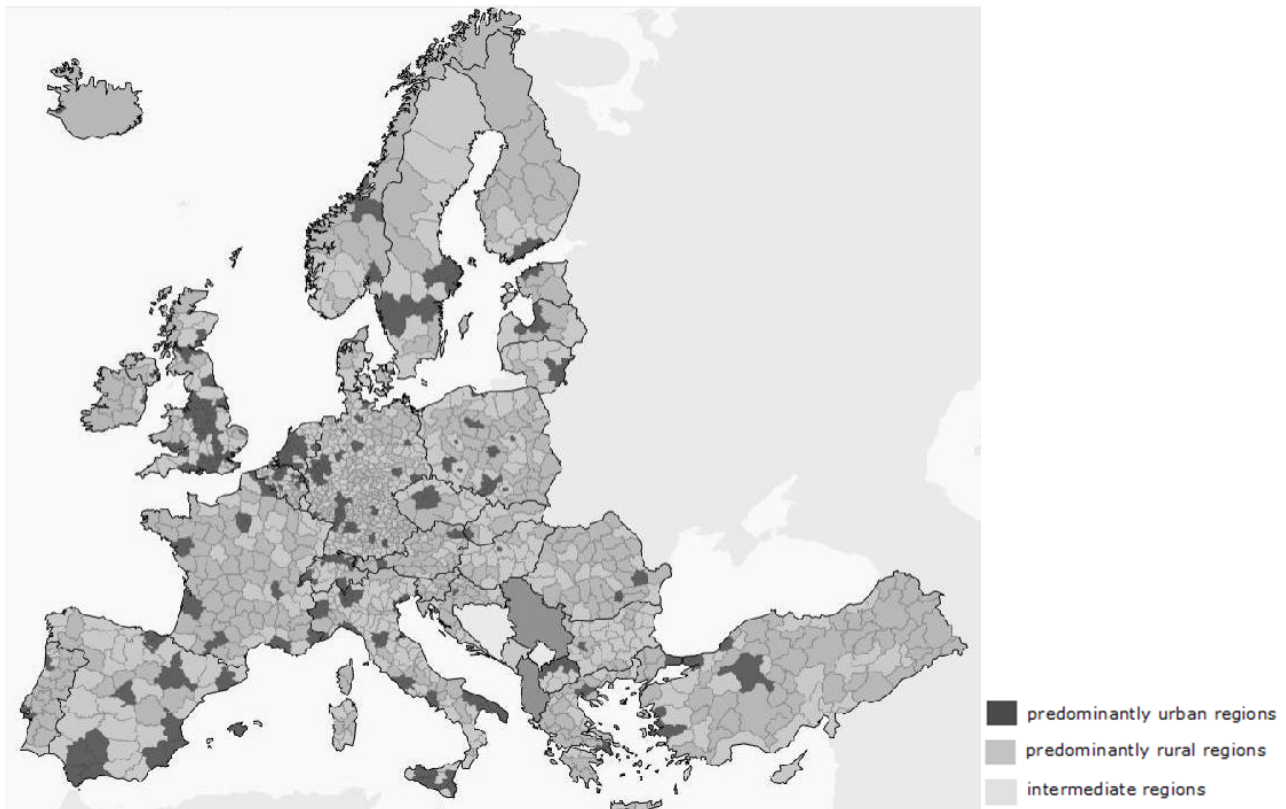
Giannakis and Bruggeman (Giannakis E., Bruggeman A., 2017) reviewed interpretation of these three components, which for the subregional level of this analysis can be summarized as follows:

- 1) a national growth effect (NS) measures the change in the subregional employment that would have occurred if the subregional employment had grown at the same rate as the national; it portrays the share of subregional job growth attributable to the growth of the national economy;
- 2) an industry-mix effect (IM) attributes changes in employment to changes in the industrial composition of the subregion; it reflects the positive or negative impact of subregional specialization in sectors that are slow or fast growing relative to the national average, respectively; $IM > 0$ can be interpreted as an indicator of a diverse set of sectors, while $IM < 0$ can be interpreted as an indicator of a specialized economy;
- 3) a regional shift effect (RS) measures the change in subregional employment attributable to subregional advantages and/or competitiveness; it may result from natural endowments, the entrepreneurial ability of the subregion and other comparative advantages or disadvantages.

For the purposes of this paper, the classical shift-share analysis was applied. However, it is worth mentioning that this method has some further developments, for example in a form of the dynamic shift-share analysis (Barff R. A., Knight III P. L., 1988). Nazara and Hewings (Nazara S., Hewings G.J.D., 2004) implemented a new shift-share model assuming the existence of spatial dependence between the geographic units by means of the definition of a spatial weight matrix.

Previous research with application of the shift-share method often focus on the regional level (NUTS 2) (Sobczak E., 2015; Zemkova K., Bartova L., 2013). In such a situation, investigating subregions enables identification of those smaller areas which have been slowing down or accelerating the economic performance of larger units – NUTS 2 (Oguz S., Knight J., 2010). In other words research on subregions allow to be more precise in identification of economic development or slowdown across the space. This is a logical consequence of a hierarchical structure of the territorial division – regional development takes place in a national framework and depends in part on forces operating at the national level (Dunn E. S., 1960), but local development is not autonomic development in a smaller scale - it reflects bottom-up regional development (Rakowska J., 2016). Therefore, the primary objective of the research is to investigate structural changes on a possibly low level of a territorial division. That is why the European Union (EU) typology of NUTS3 regions divided into predominantly rural, intermediate, and predominantly urban regions (Eurostat, Urban-rural Typology) was applied for the purposes of this study (Fig. 1). In Poland, there were 15 predominantly urban regions, 26 intermediate regions and 31 predominantly rural regions (investigated in this paper) according to this methodology in 2016.

Traditional division (Kenessey Z., 1987), which is still used by contemporary research (Hueske AK., Guenther E., 2015), into a primary, secondary, tertiary and quaternary sector was applied.



Source: Eurostat, *Regions and Cities Illustrated*

Fig. 1. Urban-rural typology by NUTS3 regions

According to the classification of the Central Statistical Office of Poland, a provider of data on a number of employed persons within the Local Data Bank, this traditional division looks as follows:

- primary sector - agriculture, forestry, fishing; secondary sector – industry, construction;
- tertiary sector - trade; repair of motor vehicles; transportation and storage; accommodation and catering; information and communication;
- quaternary sector - financial and insurance activities; real estate activities and other services: professional, scientific and technical activities, administrative and support service activities, public administration and defence; compulsory social security, education, human health and social work activities, arts, entertainment and recreation other service activities.

Research results and discussion

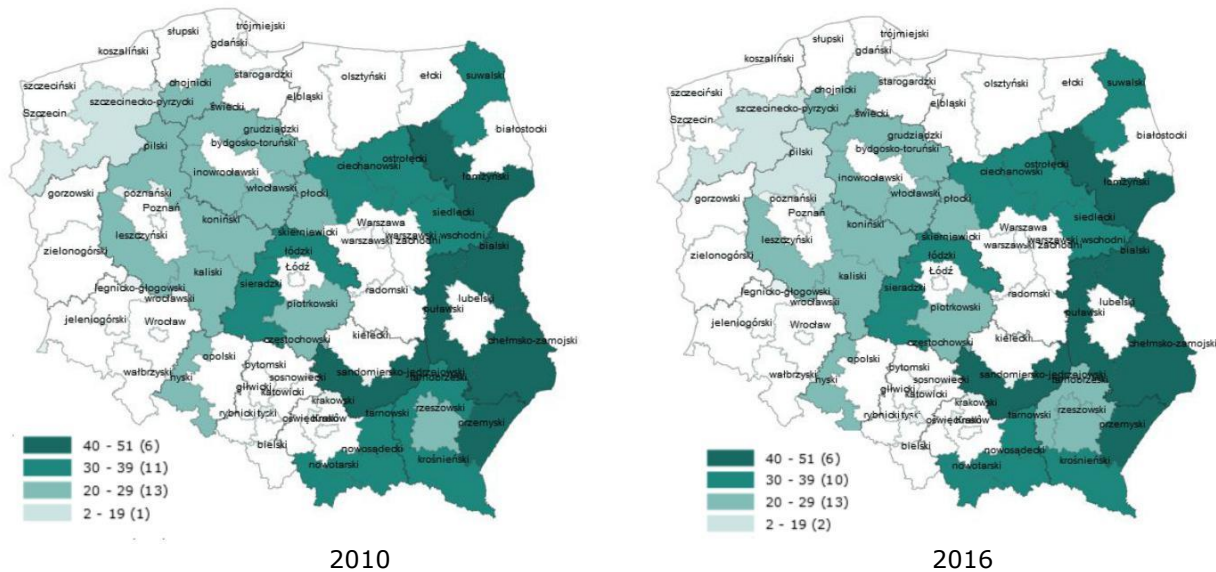
It is obvious that the most significant scale of employment in the primary sector occurs on rural areas. It was the most important sector of employment accounted for about one third of employment in the analysed period (Tab. 1).

Table 1
Sectoral employment structure in Poland according the urban-rural typology (%)

No	Type	Primary		Secondary		Tertiary		Quaternary	
		2010	2016	2010	2016	2010	2016	2010	2016
1.	predominantly urban	2.54	2.32	26.37	23.59	29.88	30.25	41.21	43.84
2.	intermediate	15.89	14.58	30.40	30.06	25.00	25.38	28.71	29.97
3.	predominantly rural	32.80	31.08	25.21	25.53	18.78	19.30	23.21	24.09

Source: author's calculations based on data of the Central Statistical Office of Poland

As mentioned in the introduction, the primary sector plays a different role in regional and subregional economies across the country. Undoubtedly, agriculture, forestry and fishing are important for employment in the south-eastern part of Poland (Fig. 2). All predominantly rural subregions located there can be characterized by relatively high rates of employment in the primary sector, both at the beginning as well as at the end of the investigated period. Similar results on regional and subregional differentiation in Poland can be confirmed by other research (Drejerska N., 2015; Pomianek I., 2016). This situation can result from advantageous conditions for agricultural activities there, a traditionally significant role played by this sector in this part of Poland as well as agricultural land fragmentation and agrarian overpopulation in some of these areas (Musiał W., Wojewódzic T., 2015).



Source: author's calculations based on data of the Central Statistical Office of Poland

Fig. 2. Employment in the primary sector on predominantly rural subregions (%)

Table 2 presents the results of the classical shift-share analysis for the employment structure in Polish predominantly rural subregions for the years 2016 and 2010. A general increasing tendency of employment can be identified, which is proved by the value of the national growth effect: 8.61 %. This component describes the change that would be expected due to the fact that a subregion is part of a dynamic national economy (Oguz S., Knight J., 2010). Individual industry-mix effects for particular sectors are quite diversified, starting from the lowest -8.19 % for the primary sector and ending with the highest positive value (5.98 %) for the quaternary sector. The primary and secondary sectors are characterized by negative values, which indicates negative impact of subregional specialization – these sectors grow slower comparing to the national average. It is not surprising as results of regional development studies suggest that employment in agriculture and other land-based industries has a decreasing tendency, so the economic fortunes of rural areas have come to depend upon a much wider range of drivers than the economic fortunes of the primary sector (Ward N., Brown D.L., 2009).

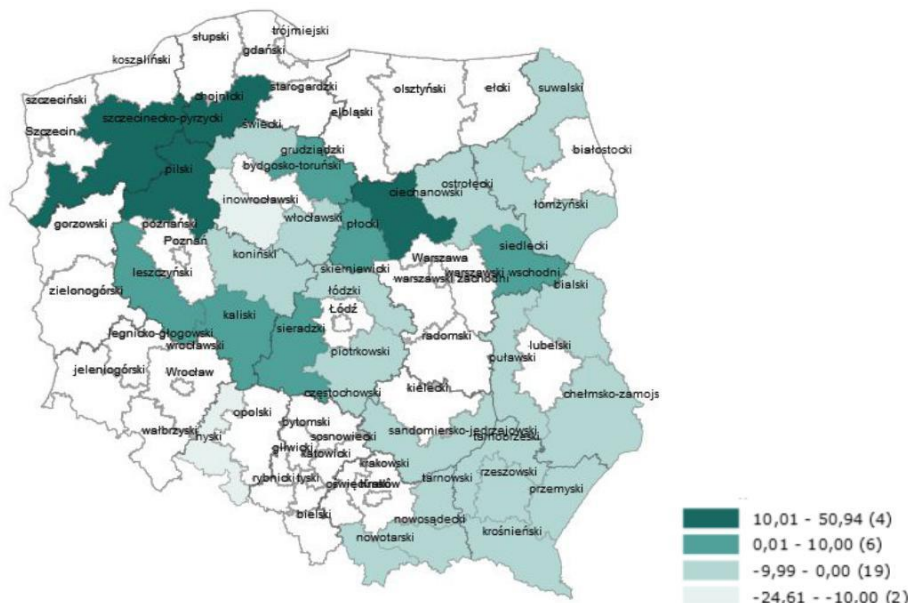
Table 2

Results of shift-share analysis with regard to effects of structural employment changes (%)

No	Effects of structural employment changes		%
1.	national growth effect (growth rate of employment in Poland)		8.61
2.	industry-mix effect	primary sector	-8.19
		secondary sector	-3.57
		tertiary sector	2.22
		quaternary sector	5.98

Source: author's calculations.

Investigation of regional shift effects is the last part of the shift-share analysis. RS values for the primary sector in predominantly rural areas are presented on the Figure 3. Regional shift effects for 21 (out of 31) subregions are negative, which can be interpreted as employment specialization of these areas in the primary sector. Negative values both for IM and RS indicate that the primary sector was a poor performer nationally as a sector of employment and even poorer in these subregions than at the national level.



Source: author's calculations

Fig. 3. Regional shift effect for employment in the primary sector on predominantly rural subregions (%)

There are only 10 subregions characterized by positive values of the regional shift effects. Alongside with the negative industry-mix effect, it indicates that the primary sector was a poor performer nationally as a sector of employment but better in these subregions than at the national level (Karlsson Ch., Andersson M., Norman T., 2015). Undoubtedly, this research should be develop in order to include for example an issues of labour productivity in agriculture, which in Polish farming was much lower in comparison with other countries as well as other links of the food sector and the national economy (Golebiewski J., 2013).

Conclusions

Although the primary sector can be characterized by a decreasing tendency, it is still important in the sectoral structure of employment across predominantly rural subregions in Poland. The results of the shift-share analysis allows for the following conclusions:

- 1) a general increasing tendency of employment can be identified, which is proved by the value of the national growth effect;
- 2) the primary and secondary sectors are characterized by negative values of the industry-mix effect which means that their employment grows slower comparing to the national average;
- 3) regional shift effects for 21 (out of 31) subregions are negative, which can be interpreted as employment specialization of these areas in the primary sector and alongsides with the negative industry-mix effect it means that the primary sector is a poor performer nationally as a sector of employment and even poorer in these subregions than at the national level.

However, some further analysis should be carried out in order to present a coherent view of the sectoral structure of subregional economies across predominantly rural subregions as for example a lack of the dynamic increase in employment alongside with increase in the value added generated by the primary sector can be interpreted as a trend of increasing efficiency. Further studies can be also developed with use of the dynamic or spatial shift-share method.

Bibliography

1. Barff, R. A., Knight III, P. L. (1988). Dynamic Shift-Share Analysis. *Growth and Change*, 19, pp. 1–10.
2. Chrzanowska, M. (2017). Multidimensional Comparative Analysis of the Polish Agri-food Sector in Regard to Other EU Countries in the Years 2004–2014. Proceedings of the 2017 International Conference Economic Science for Rural Development, No 44 Jelgava, LLU ESAF, 27-28 April 2017, pp. 323-329
3. Drejerska, N., Chrzanowska, M. (2017). Sectoral Employment Diversification in Rural Areas Across Polish Subregions. *Roczniki Naukowe Ekonomii Rolnictwa i Rozwoju Obszarow Wiejskich* 2017, vol. 104, nr 4, pp. 28-36.
4. Drejerska N. (2015): Spatial Patterns on the Labour Market on Rural Areas in Poland. Proceedings of the International Scientific Conference: Rural Development 2015, 5 s.
5. Dunn, E. S. (1960). A Statistical and Analytical Technique for Regional Analysis. *Papers in Regional Science*, 6, pp. 97–112.
6. European Commission (2017). CAP Context Indicators 2014-2020. 2017 Update, p. 47.
7. Eurostat, Regions and Cities Illustrated, http://ec.europa.eu/eurostat/cache/RCI/#?vis=urbanrural.urb_typology&lang=en. Access: 10.01.2018
8. Eurostat, Urban-rural Typology, http://ec.europa.eu/eurostat/statistics-explained/index.php/Urban-rural_typology. Access: 10.01.2018
9. Giannakis, E., and Bruggeman, A. (2017). Economic Crisis and Regional Resilience: Evidence from Greece. *Papers in Regional Science*, 96, pp. 451–476.
10. Golebiewski, J. (2013) Changes in Competition Trends and Labour Productivity in the Marketing Chain of Foodstuffs. Economic Science for Rural Development Conference Proceedings. 2013, Issue 32, pp. 178-183.
11. Grodzicki, M. (2014), Structural Similarities of the Economies of the European Union. Equilibrium. *Quarterly Journal of Economics and Economic Policy*, Volume 9, Issue 1, pp. 93-117,
12. Hedlund, M., Lundholm, E., (2015). Restructuring of Rural Sweden - Employment Transition and Outmigration of Three Cohorts Born 1945-1980. *Journal of Rural Studies* 42, p. 124.
13. Hueske, AK. & Guenther, E. (2015). What Hampers Innovation? External Stakeholders, the Organization, Groups and Individuals: a Systematic Review of Empirical Barrier Research. *Manag Rev Q* (2015) 65, pp. 113-148.
14. Karlsson, Ch., Andersson, M., Norman, T. (2015). Handbook of Research Methods and Applications in Economic Geography. Edward Elgar Publishing, p. 88.
15. Kenessey, Z (1987). The Primary, Secondary, Tertiary and Quaternary Sectors of the Economy. *Rev Income Wealth* 33(4), pp. 359–385.
16. Klembowska, D. (2012). Determinants of Employment in Industrial Enterprises in Poland. *Electronic Journal of Polish Agricultural Universities. Economics* 2012, Vol. 15, Issue 2, 6 p.
17. Markusen, A.R., Noponen, H., Driessen, K. (1991). International Trade, Productivity, and U.S. Regional Job Growth: A Shift-Share Interpretation. *International Regional Science Review* Volume 14, Issue 1, pp. 15–39.
18. Musiał, W., Wojewodzic, T. (2015). Zróżnicowanie regionalne rolnictwa rodzinnego i sytuacja produkcyjno-ekonomiczna rodzinnych gospodarstw rolnych funkcjonujących w różnej strukturze agrarnej (Regional Diversification of Family Farming and Production and Economic Situation of Family Farms Operating with Different Agrarian Structure) Podstawka M. (red) Ekonomiczne i prawne mechanizmy wspierania i ochrony rolnictwa rodzinnego (Economic and Legal Mechanisms of Support and Protection of Family Farming). Fundacja Programów Pomocy dla Rolnictwa FAPA, Warszawa, pp. 26-45
19. Nazara, S., Hewings, G.J.D. (2004). Spatial Structure and Taxonomy of Decomposition in Shift-Share Analysis. *Growth and Change*, Wiley Blackwell, vol. 35(4): 476-490.
20. Oguz, S. & Knight, J. (2010) Regional Economic Indicators: with a Focus on Sub-regional Gross Valued Added Using Shift-share Analysis. *Econ Lab Market Rev* 4 p. 64.

21. Pomianek, I. (2016). Charakterystyka potencjału gospodarczego oraz przestrzennych zróżnicowań rozwojowych gmin wiejskich województwa lubelskiego (Characteristics of Economic Potential and Spatial Development Differentiation of Rural Communes in Lubelskie Voivodship). *Acta Universitatis Lodzensis. Folia Oeconomica* 2016, Vol. 4, nr 323 pp. 81-102.
22. Rakowska, J. (2016). Samorzady gmin jako beneficjenci polityki spójności UE w latach 2007–2013 (2015). (Local Self-governments as Beneficiaries of the EU Cohesion Policy in the Period 2007-2013 (2015)), Wydawnictwo SGGW, Warszawa, p. 21.
23. Sobczak, E. (2015). Poziom specjalizacji w sektorach intensywności technologicznej a efekty zmian liczby pracujących w województwach Polski (Specialization in Sectors of Technical Advancement vs. Effects of Workforce Number Changes in Poland's Voivodships). *Research Papers Of Wrocław University Of Economics* nr 384, pp. 271-279.
24. Stimson, R.J., Stough, R.R., Roberts, B.H. (2006). *Regional Economic Development: Analysis and Planning Strategy*. Springer Science & Business Media, p. 115.
25. Ward N., Brown, D.L. (2009). Placing the Rural in Regional Development. *Regional Studies* Volume 43, Issue 10.
26. Zemkova, K., Bartova, L. (2013). Regional Economy and Employment in Slovak Republic. *Rural Development* 2013, pp. 657-662.

REGIONAL PATTERNS OF BELONGING AMONG YOUNG LATVIAN RETURNEES

Elina Apsite-Berina¹, Dr. geogr., Researcher; **Zaiga Krisjane**², Dr. geogr., Professor;
Guido Sechi³, PhD., Researcher; **Maris Berzins**⁴, Dr. geogr., Assistant Professor
^{1,2,3,4} University of Latvia, Faculty of Geography and Earth Sciences

Abstract. This paper investigates return migration to Latvia and explores the profiles of young return migrants to core and peripheral parts of the country. Traditionally, return migrants are viewed as potential human capital that can be reinvested in the country of origin. At individual level, the attraction to the region or city of origin has an important emotional aspect and a sense of belonging to a certain place. Despite the level of satisfaction, self-valued gains from international experience and difficulties the individual needs to overcome upon return, the feeling of belonging and longing for home often overcomes the economic aspects of return. This is particularly important when describing a group of young adults and geographically looking at different marginal and core places.

As an analytic framework, return migration concepts explain several aspects that wreathe individual return migration decision. Returnees' profiles of core and peripheral parts of the country describe individual's longing for home with a background of migration experience.

Authors draw on empirical materials from Horizon2020 YMOBILITY project and reflect on data from survey and interviews with Latvians who have returned from the main destination countries and currently reside in core or peripheral parts of the country. Research indicates that returnees to peripheral parts are mostly married men with children, holding secondary vocational education and who are skilled manual workers. Returnees to the core part are mostly single women with up to tertiary education level and employment in clerical or administrative fields. Pierīga exceptionally attracts those who are homesick, while Zemgale and Kurzeme attract those who wish to live and work, because they feel attached to these places and desire to reside there.

Key words: return migration, Latvia, core, periphery, belonging, migrant profiles.

JEL code: R110, J110

Introduction

Since the accession to European Union (EU), Latvia has witnessed increased mobility both in terms of internal and international migration. It is especially characteristic to non-metropolitan and predominantly rural regions, which have experienced an outstanding population decline mainly due to out-migration of young adults. This problem is largely discussed among academics and highly important to the society. Many studies on migration in Europe have emphasized the regional patterns not only for out-migration, but also for return and circular movements (Cassarino, 2004; Engbergesen et al., 2013; Farell et al., 2014; King, 2017; King and Williams, 2017). Recent study on intra-EU youth mobility patterns reveals that both emigration and return migration decisions consider socioeconomic, cultural aspects as well as place specific aspects within which individuals' migration decisions are made (Sandu et al., 2017). Even more, return migration is an important issue for the regions and settlements of the sending country (Farell et al., 2012; Nadler et al., 2014; Coniglio and Brzozowski, 2018). Furthermore, previous studies have provided empirical evidence for the relationships between place attachments, belonging and spatial mobility (Gustafson, 2006; Du, 2017). Despite the growing interest, migrants' bonding with their place of origin appears less researched, especially in the case of young returnees. There is a substantial amount of literature on the subject of emigration from Latvia, but understanding about the impact of migration on place attachment and belonging is limited.

Aim of the research is to explore the composition of young adults and motivation behind the return decision in the light of place attachment and belonging. In general, one particular question is addressed – how important is the place of origin in the era of globalisation and increased

mobility. Empirically, tasks of the study are to extend the existing knowledge of place attachment and belonging in migration studies by analysing young adults returning to their home regions and to highlight individual experiences. Based on the previous research, several socioeconomic, cultural, family and psychological aspects induce return migration (King, 1978; Williams and Balaz, 2005; Zaiceva and Zimmermann, 2012; Lados and Hegedus, 2016). Regarding the regional patterns, authors distinguish between core regions (the city of Riga and the Pieriga region) and peripheral regions (Zemgale, Kurzeme, Vidzeme and Latgale).

Authors draw on empirical materials from Horizon2020 YMOBILITY project and reflect on data from the survey and interviews with return migrants (up to 35 years old). Pan European survey took place in nine European countries with total number of 30000 respondents in 2015 and 2016. Total number of survey respondents and interviewees was, respectively, 311 and 70 young returnees. Available data allowed using a mixed methodological approach, identifying main profiles and individual experiences of return migration of young returnees to the regions of Latvia.

Profile of young returnees: core and periphery

The typical profile of a young Latvian returnee to core and peripheral regions is as follows (Table 1). People up to age of 35 were surveyed in this study, and the average age of returnees is above 27 years. More women have returned to Riga and Pieriga, while the share of men is higher in peripheral regions. Civil status figures display sharp differences. More people who are single without children have returned to core parts. Young returnees to peripheral regions are more likely to be married or in a partnership and with children. This mostly relates to family reunification processes. Overall, the most common level of education in Latvia is secondary or vocational education. This is also the case with the respondents of peripheral regions. Core regions of Latvia attract more young returnees with secondary education and compared to periphery there is a much higher share of people with tertiary education (respectively, 25.5 % and 14.5 %). In this context, Riga can possibly attract more young returnees who wish to study or continue studies. There are also noticeable differences when analysing current occupational status of young returnees. Overall, the most common occupational status after return is employment as skilled manual; the least common is student. In the case of Riga and its surroundings, the most common status is clerical and administrative work, and the least common is low-skilled physical work. In the case of periphery, returnees are mostly skilled and other manual workers, while students make up the smallest group. Possibility of return migration correlates with time spent abroad - majority of surveyed young returnees have lived and worked or studied for a period of approximately 1 to 2 years. Possibility to return permanently decreases with the increase of time spent abroad.

Besides the profile of a typical returnee, it was essential to analyse the geographical aspect of the return motives of those who returned (Table 2). 17 return motives of respondents were ranked according to the mean values for peripheral regions and the core part of Latvia. The motives were also arranged according to the highest mean values. Overall, the main return motives relate to homesickness, taking care of family in Latvia (case of Kurzeme), reuniting with a partner or starting a family (case of Zemgale) and wishing to raise children in Latvia (Kurzeme). These results show the importance of longing for home and the attachment to the place of origin. Moreover, Kurzeme and Zemgale regions are the most attractive ones for returnees whose return is family related.

Table 1

Respondent characteristics, (%)
Descriptive characteristics of Latvian returnees

	All returnees to Latvia	Core	Periphery
Gender			
Women	51.1 %	57.70 %	49.30 %
Men	49.9 %	42.30 %	50.70 %
Average age (years)	27.55	27.91	27.21
Civil status			
Single without children	36.3 %	43.80 %	30.90 %
Single parent	2.9 %	3.60 %	2.00 %
Married / partner without children	13.5 %	13.10 %	13.20 %
Married / partner with child/children	39.5 %	29.20 %	48.00 %
Separated/divorced/widowed without children	2.6 %	3.60 %	2.00 %
Separated/divorced/widowed with child/children	5.1 %	6.60 %	3.90 %
Educational level			
Primary education or less	6.8 %	5.1 %	8.6 %
Secondary education	33.8 %	29.2 %	37.5 %
Post-secondary non-tertiary education	32.5 %	24.1 %	37.5 %
First stage of tertiary education	18.6 %	25.5 %	14.5 %
Second stage of tertiary education	8.4 %	16.1 %	2.0 %
Current occupational status			
Manager or professional	12.8 %	17.80 %	8.70 %
Clerical and other administrative	18.1 %	28.10 %	10.10 %
Skilled manual	21.7 %	17.80 %	21.50 %
Other manual	13.5 %	5.90 %	20.80 %
Student	6.3 %	7.40 %	6.00 %
House-person, caring, and other not in employment	7.6 %	5.90 %	10.10 %
Seeking a job	9.5 %	7.40 %	12.10 %
Other	10.5 %	9.60 %	10.70 %
Duration of stay abroad			
1 year or less	35.1 %	33.1 %	37.0 %
1-2 years	25.4 %	25.4 %	25.3 %
2-3 years	16.3 %	15.4 %	17.1 %
3-5 years	14.1 %	16.2 %	12.3 %
5-7 years	5.1 %	3.8 %	6.2 %
7-10 years abroad	2.2 %	3.8 %	0.7 %
more than 10 years abroad	1.8 %	2.3 %	1.4 %
Total and responses with geographic identification	311	137	152

Source: author's calculations based on survey results

Table 2

Return motivations by region, (rank)

	Region/Return motive	PERIPHERY				CORE	
		Zemgale	Kurzeme	Latgale	Vidzeme	Riga	Pieriga
1	Homesickness	2	3	6	4	5	1
2	To take care of the family	6	1	5	3	4	2
3	To get married / be with a partner and form a family	1	2	6	5	4	3
4	For children to grow up in home country	2	1	5	3	6	4
5	Migration aims achieved	1	4	6	5	2	3
6	Return home to complete my training/studies	2	5	3	6	1	4
7	Personal problems	1	3	6	5	2	4
8	General welfare/ life quality	2	3	6	5	1	4
9	Cheaper cost of living	1	2	6	3	4	5
10	Better job prospects/income in home country	1	2	6	5	3	4
11	To have my own house	4	1	2	6	3	5
12	Health problems	1	2	6	4	3	5
13	Difficult socio-cultural environment	1	4	6	2	3	5
14	Expired work permit/or failed to get extension to permit	3	5	1	6	2	4
15	Temporary stay/ end of studies or contract	2	4	3	5	1	6
16	To create a new business at home	1	2	4	6	3	5
17	Company transfer	1	4	5	3	2	6

Source: author's calculations based on survey results

The overall highest mean value, and the rank, relates to homesickness for return migrants originating from Pieriga. This is explained by the large number of crisis migrants (McCollum et al., 2016), who emigrated from Pieriga during the period of economic crisis as a way of economic rescue to secure the housing purchased in this area.

The capital city of Riga has characteristic features relating to students and planned returns. According to the analysis, most common reasons for returning to Riga were the desire to complete or continue studies or the temporary nature of their initial stay abroad. Return to Vidzeme region, is unique in comparison to other regions, because none of the motivational factors have the highest rank; thus it represents mixed return motivations. Latgale region displays the lowest positions in rank for the majority of the mentioned motives. There is, however, one distinction - persons who returned to Latgale mostly did it because their work permits expired or they failed to get an extension. Besides taking care of family and wanting their children to grow up in Latvia, Kurzeme region has the highest potential for returnees to purchase or inherit real estate and to settle down. Interestingly, Zemgale region has numerous leading positions in the return motivation ranking, but relating to both positive and negative aspects. Besides the previously mentioned positive family motives, personal problems and health issues are present. It seems that returnees to Zemgale had strategically planned their emigration - compared to other regions returnees have achieved their migration aims. Gain and loss evaluation reveals that it is cheaper to live in Zemgale than in the

country of destination; also, the region offers similar or even better job prospects and income and is more welcoming when it comes to creating a business.

From the combination of return motivations and returnees' profiles, it is evident that peripheral (particularly Zemgale and Kurzeme regions) attract skilled workers with secondary or vocational education, who are in a partnership, with children and wish to live and work, because they feel attached to these places and desire to reside there.

Longing for home: individual returns

The main countries of destination for returnees to Latvia are the UK, Ireland, Germany and Sweden. 28 interviewed individuals returned from the UK, 24 from Germany, 10 from Ireland and 8 returned from Sweden. From 30 people who reside in the core part of the country, 20 people lived there before emigration. Peripheral distribution shows that before emigration, 28 people lived in a small/medium size town, while 12 lived in small villages or rural areas. After the return, this proportion has slightly changed as 12 people currently live in medium size towns and 8 others remain living in small villages, most often in the family property they originated from.

15 people have spent less than 2 years abroad. 23 people have spent two to three years abroad, 12 others have spent three to five years there. The remaining 10 have lived abroad for a period of up to 14 years.

In terms of occupation, students and high skilled returnees mostly returned to Riga, while ones with lower skilled occupations returned to peripheral parts.

As identified in previous sections, survey result analysis of qualitative data reveals predominance of attachment to the place of origin, longing for home and importance of one's regional identity, which in many cases is more important than national or European identity.

Results suggest that international migration as a form of experience urges young Latvians to question and contribute more to personal understanding of cultural and social identity matters. Being away from their common environment allows testing one's ability to integrate in a strange environment and at the same time to value their own culture, tolerance towards other nationalities etc. Simultaneously, personal gains and opportunities are highly valued by students.

Following quotes indicate the importance of return migrant issues related to belonging illuminated throughout in-depth interviews where positive assertiveness was evident among returnees from both core and peripheral parts. Seemingly, those returning to Riga relate to Latvia as a whole *"In Latvia I feel at home. While I was abroad, I felt like going home all the time (Men, 36, UK, Riga, married, children)"* and *"I am definitely a Latvian, I belong to Latvia. But Latvia as a cultural entity and cultural identity cannot be separated (Man, 37, Riga, low skilled, no partner, no children)"*.

International migration experience is seen as an enriching experience that allows to respect ones' own cultural values and to gain a good understanding of various other cultures. Understandably, integration to host societies is not acceptable for all migrants, thus, in the case of Latvian returnees' international experience is valued positively, but longing for home has triggered the return: *"I am certainly about Latvia, about Latvian traditions, culture, language and everything that is related to Latvia. I have changed my views and attitude towards other cultures, other nations, because I have had chance to get to know them. I view people differently, because I have gained experience during my work abroad. (Woman, 33 years, UK, periphery, married, no children, high skilled)"*

Internationally, it is often a task and a struggle to represent and to inform others about a small country from Eastern Europe. There are different levels of knowledge when it comes to specific identity features for different countries. In this quote, the returnee is proud of holding Latvian identity and tries to educate others on national identity features: *“there are times when Latvian pride is coming out and people are asking - if I am Latvian. However, in other places, when I have been abroad and people see no difference between- Latvia, Lithuania, Russia, I always have my Latvian identity. Abroad, yes, my Latvian identity is always important. (Woman, 35, Sweden, high, married, children, Riga)”*.

Experience abroad forces students to step out of their comfort zone and after this experience, they appreciate opportunities provided in Latvia: *"It [identity] strengthened in Germany as there were such different cultures represented. In that environment, you are very conscious of your own origin, identity and feel how much value is there when people around you talk in your native language. It is a great freedom and an opportunity to study at a place that has good qualities, in the home country, in your native language, with people who think alike. Many green forests around. (Man, Germany, Riga, student, no partner, no children)".*

Comparison between core and peripheral parts of the country shows slight differences in how they perceive the feeling of home. Returnees to peripheral parts, compared to returnees to Riga, exemplify a more nuanced view on belonging to rural places: *"I feel at home in rural areas. I work with rural girls at school; I see that their parents are interested in those [identity/belonging] things. Sure, it is countryside, this region; the county would be too strongly to say, maybe, but villages - Palsmane, Blome for sure. I do feel at home in Smiltene. (Man, Sweden, 35, periphery, married, children, high skilled; abroad low skilled)." "It will be in Latvia! I might even say that the whole Latvia. Whatever city or countryside. At the moment, I feel at home in Latvia (Woman, 27, UK, low skilled, periphery, married, children)."*

Interesting aspect found in the interview material relates to young returnees with mixed background (Latvian – Russian, Latvian – other nationality, Russian, originating from eastern part of Latvia). For them, the question of national identity seems irrelevant and not important: *“For some time, I could not make a choice, because my father is from Russia, but mother is Latgalian. I grew up in Daugavpils, where many people speak Russian. As I grew up in Daugavpils, there was no question of nationality, Latvians, Russians, Poles, Latgalians – we were communicating without mentioning ones’ nationality. I speak Latvian well, but due to my accent, you can tell that I am not 100 % Latvian. For me, national identity issue is not a problem. A man, who lives abroad also becomes patriotic and homesickness appears. The identity of belonging to Latvia is important to me, but for people it is more important to live in harmony (Man, UK, 37, low, periphery, no children, no partner).”*

This group of people represents regional differences where the category of national identity plays no role, but the feeling of home and belonging to Latvia is characterised as very relevant. *"In Latvia. I was born here. I usually said that I am Russian because the of people majority do not know where Latvia is. Those who know something, repeatedly ask about Lithuania. Few know about Latvia; it is easier to say I am Russian (Man, 29, periphery, high skilled, partner, no children)."*

Conclusions, proposals, recommendations

- 1) Returnees to peripheral regions are more likely to be married men with children, holding secondary vocational education and who are skilled manual workers. Returnees to the capital city and the core area are more likely to be single women with up to tertiary education level and employment in clerical or administrative fields.
- 2) From the combination of return motivations and returnees' profiles, it is evident that peripheral regions –in particular, Zemgale and Kurzeme - attract skilled workers with secondary or vocational education who are in partnership with children and wish to live and work, because they feel attached to their place of origin and desire to reside there.
- 3) While being abroad, separated from common environment and living among people of other nationalities, young migrants strengthen their views. Being away from the homeland is perceived as way of trying to find oneself and to understand their own feelings about the country of birth. Identity is closely linked to personal independence. Understanding of one's individual identity traditionally relates to transition to adulthood, which is strongly influenced by independent life abroad. At the same time, international experience and the opportunity to study and work abroad is highly valued.
- 4) Overall, the most prevalent motives for return migration is homesickness, taking care of family in Latvia (characteristic to Kurzeme region), willingness to be reunited with a partner or having a family (Zemgale), and wishing to raise children in Latvia (Kurzeme). Sense of belonging to the country and regions in particular is a very important factor when it comes to return migration processes.
- 5) The sense of belonging to a rural place seems to have a strong influence on return migration decisions; returnees to the capital city reveal a more strategically planned return related to work and studies.

Acknowledgments

The research leading to these results received funding from the Horizon 2020 YMOBILITY project (Youth Mobility: Maximising Opportunities for Individuals, Labour Markets and Regions in Europe), grant agreement no. 649491. and the National Research Program [grant number 5.2.4].

Bibliography

1. Cassarino, J. P. (2004). Theorising Return Migration: The Conceptual Approach to Return Migrants Revisited. *International Journal on Multicultural Societies*. 6(2): 253–279.
2. Coniglio, N. D., Brzozowski, J. (2018). Migration and Development at Home: Bitter or Sweet Return? Evidence from Poland, *European Urban and Regional Studies*, 25(1), 85–105.
3. Du, H. (2017). Place Attachment and Belonging Among Educated Young Migrants and Returnees: the Case of Chaohu, China. *Popul. Space Place* 2017; 23; e1967.
4. Engbersen, G., A. Leerkes, I. Grabowska-Lusinska, E. Snel, and J. Burgers. (2013). On the Differential Attachments of Migrants from Central and Eastern Europe: A Typology of Labour Migration. *Journal of Ethnic and Migration Studies* 39 (6): 959–981. doi: 10.1080/1369183X.2013.765663
5. Farrell, M., Kayrite, E., Nienaber, B., McDonagh, J. Mahon M. (2014) Rural Return Migration: Comparative Analysis between Ireland and Lithuania. *Central and Eastern European Migration Review* 3(2): 127– 149
6. Farrell, M., Mahon, M., McDonagh, J. (2012). The Rural as a Return Migration Destination. *European Countryside*. 4 (1):31–44. DOI: 10.2478/v10091-012-0012-9
7. Gustafson, P. (2006). Place Attachment and Mobility. In *Multiple Dwelling and Tourism: Negotiating Place, Home and Identity*. McIntyre, Williams DR, McHugh k (eds) CAB International:Wallingford; 17 – 31.
8. King, R (1978) Return Migration: a Neglected Aspect of Population Geography. *Area* 10(3): 175–182.
9. King, R, Williams, A.M. (2017). Editorial introduction: New European Youth Mobilities. *Popul Space Place*. e2121. <https://doi.org/10.1002/psp.2121>
10. King, R. (2017). Theorising New European Youth Mobilities. *Popul Space Place*. 2017; e2117. <https://doi.org/10.1002/psp.2117>

11. Lados, G., Hegedus, G. (2016) *Returning home: An evaluation of Hungarian return migration*. Hungarian Geographical Bulletin 65(4), 321–330.
12. McCollum, D., Apsite-Berina, E., Berzins, M & Krisjane, Z. (2016). Overcoming the crisis: the changing profile and trajectories of Latvian migrants, Journal of Ethnic and Migration Studies, DOI:10.1080/1369183X.2016.1232161
13. Nadler, R., Kovacs, Z., Glorius, B., Lang, T. (Eds) (2016) *Return Migration and Regional Development in Europe. Mobility Against the Stream*. Palgrave Macmillan UK.
14. Sandu, D., Toth, G., Tudor, E. (2018). The Nexus of Motivation–Experience in the Migration Process of Young Romanians. *Popul Space Place*. 2018;24:e2114. <https://doi.org/10.1002/psp.2114>
15. Williams, A.M., Balaz, V (2005) What Human Capital, Which Migrants? Returned Skill Migrants to Slovakia From the UK. *International Migration Review* 39(2):439–468.
16. Zaiceva, A. and Zimmermann, K. F., (2012). *Returning Home at Times of Trouble? Return Migration of EU Enlargement Migrants During the Crisis*. IZA Discussion Papers 7111, Institute for the Study of Labor (IZA).

LIFE QUALITY ASSESSMENT IN THE CITY OF JELGAVA

Līga Feldmane ¹, Mg.geogr.

¹ University of Latvia

Abstract. Studies about life quality and people's satisfaction with life currently are focused on cities as important cultural, social and political centres. The aim of the study is to evaluate residents' satisfaction with life quality in Jelgava; and to achieve it, such methods as analysis of theoretical literature and statistical analysis, classification and comparison of data about satisfaction with life quality in Jelgava city from survey "Quality of Life in Cities", which was conducted by Central Statistical Bureau of Latvia in 2017, were applied. Results demonstrate that overall satisfaction level with living in Jelgava is relatively high and is one of the highest among other regional cities of Latvia. It was observed that satisfaction with living in Jelgava is closely related with several indicators that characterized the household's living standard and financial situation - the worse was situation in the household, the lower satisfaction level with life in Jelgava was. The residents of Jelgava are mainly satisfied with environmental factors, while such elements as the condition of the streets and buildings, health care services and public transport were assessed the lowest. The main issues facing Jelgava were road infrastructure, unemployment and health services, while noise level, education and training as well as air pollution were the least mentioned. It was observed that people firstly point out issues that are common with their subjective experience and what bother their individual life.

Key words: life satisfaction, life quality, life in a city, elements affecting quality of life.

JEL code: P25; P46; R20

Introduction

The concept of life quality is widely studied in interdisciplinary science fields and currently, especially in European countries (Okulicz-Kozaryn, Valente, 2018; Weziak-Białowolska, 2016; Rosu et al., 2015; Shaker, 2015; Sorensen, 2014), it focuses on cities as the centres of social, economic and political life as well as residence for major part of people. As Zenker et al. (Zenker et al, 2013) has argued a satisfied resident is the most important aim of cities' management, because citizens are active partners and co-producers of public goods, services and policies. In other words – satisfied human capital builds better economy; therefore it is important for city's economists and leaders to observe the satisfaction level with life quality in it, since results allow to predict future changes in city's economy, social processes and development.

According to theoretical studies (Turksever, Atalik, 2001; Ballas, 2013), life quality can be measured both with objective and subjective indicators. In the beginning of 21st century, objective indicators (for example, natural environment, income, consumption, wages and rents, local amenities, environmental pollution), which are relatively easy to quantify and collect, were most often analysed, but in recent years there is a rapidly growing number of interdisciplinary studies in which subjective measurements are studied (for example, Ballas, Tranmer, 2012; Switek, 2016; Bartram, 2013). The most often used concepts are happiness, subjective well-being and satisfaction with life and living environment, which were adapted from the field of psychology to other scientific fields. According to Pittau et al. (2010), life satisfaction is closer to the concept of an overall and more stable living flourishing and actualizing the best potential within oneself, while happiness is more volatile concept of current emotional state.

Following current trends in science, also in this study subjective satisfaction is analysed and the aim of this study is to evaluate residents' satisfaction with life quality in Jelgava, which is the fourth largest city of Latvia; and life satisfaction in Jelgava is defined as research object. In order to achieve the aim, following tasks have been set: 1) to find out how satisfied inhabitants of Jelgava are with living in the city and its facilities; 2) to identify the main issues in the city according to

¹Corresponding author: Phone: +371 26438687; E-mail: ljankava@gmail.com

respondents; 3) to analyse if there are differences among various respondent groups in their satisfaction level with living in Jelgava.

In order to assess how satisfied the residents of Jelgava are with life quality in the city, data from survey "Quality of Life in Cities" were analysed, which was conducted by Central Statistical Bureau of Latvia in 2017 when approximately 500 respondents from each 8 regional level cities of Latvia – Daugavpils, Jekabpils, Jelgava, Jurmala, Liepaja, Rēzekne, Valmiera, Ventspils - were asked to answer several questions about satisfaction with life in their city. In this paper 501 Jelgava respondents' answers with statistical methods were analysed about overall satisfaction with living in the city, their satisfaction with infrastructure and facilities of the city as well as the main issues of Jelgava. Respondents' answers were analysed considering their features such as age, household description, financial situation of household and duration in the city; comparison with other cities of Latvia was carried out.

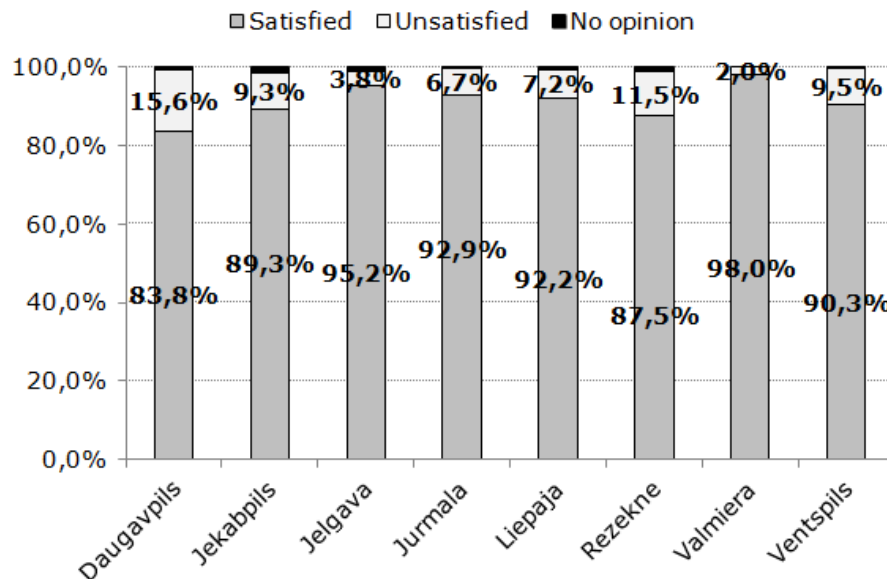
The following research methods were used in the study:

- 1) analysis of theoretical literature about previous studies of life quality and residents' satisfaction with life in the cities;
- 2) statistical analysis, classification and comparison of data about satisfaction with life quality in Jelgava city from survey "Quality of Life in Cities", which was conducted by Central Statistical Bureau of Latvia in 2017.

Research results and discussion

Results of survey demonstrate that overall satisfaction level with living in Jelgava is relatively high because 95.2 % of all respondents answered that they were very satisfied or rather satisfied with life in the city. In comparison with the other largest cities of Latvia (Fig. 1), it is the second highest satisfaction level after Valmiera where 98 % of respondents were satisfied. It should be mentioned that also in European context such result is high because among the 83 cities included in the survey, which was conducted in 2015 (European Commission, 2016), only in 23 cities the level of satisfaction exceeded 95 %, and similar results as in Jelgava were observed in such well-known and developed cities as Glasgow (UK), Newcastle (UK), Burgas (BG), Luxemburg (LU), Graz (AT) and Wien (AT), while in the capital Riga satisfaction level was 89 % high.

According to previous studies, satisfaction with life and life quality is influenced by person's age or position in life course (Qu, De Vaus, 2015; Plagnol, 2010; Mehlsen et al., 2003) as well as with living conditions, and most often with financial situation of the household (Cheung, Lucas, 2014; Gray, 2014). Qu and De Vaus (2015) argue that life satisfaction declines from the age of 15 through to the mid-30s and is at its lowest between the mid-30s to the early 50s. Also Plagnol (2010) agrees with them and points out that subjective satisfaction is U-shaped: happiness is highest when people are young and old. He also adds that such life events and transitions as family formation, family dissolution, employment and health have an impact on people's evaluations of their subjective well-being. The results of Gray's study (2014) approve that the subjective financial position of the household is to be an important determinant of overall life satisfaction, mediating the effects between the monetary financial position of the household and overall life satisfaction. Also Cheung and Lucas (2014) found positive correlation between life satisfaction and income, education, subjective health, domain satisfaction, and happiness.



Source: author's calculations based on data of Central Statistical Bureau of Latvia

Fig. 1. Respondents overall satisfaction level with living in their city, % of all respondents

As shown in Table 1, differences were found also in this study among different respondent groups and their satisfaction level. For instance, young people were considerably less satisfied with living in Jelgava than people above 30 and 65. Although it was observed that respondent's educational level have influenced satisfaction - the higher was educational level of respondents the more satisfied they were with the life in Jelgava - however this correlation was found only up to secondary educational level while opinion of people with higher education became slightly more critical. Correlation was discovered also among several indicators that characterized the household's living standard and financial situation – the worse was situation in the household the lower was satisfaction level with life in Jelgava. For example, among unemployed respondents and students as well as those who evaluated their financial situation as unsatisfactory were less satisfied persons than among employed and financially satisfied respondents. In addition, household's description and number of persons in household, what also could be linked with person's overall happiness and financial situation, approved that the more persons shared one dwelling, the less were income per capita as a result also satisfaction level with life and living in the city was lower.

According to Ballas and Tranmer (Ballas, Tranmer, 2012), in survey what was conducted in Great Britain respondents who had lived in household for more than 5 years reported their overall well-being higher than those who had lived there less than a year. It was explained with possibility that person may feel better about themselves when they have lived at current address for a relatively long period and usually have developed local social networks in their neighbourhood therefore perhaps they feel also more financially stable. In the case of Jelgava, results are similar to above mentioned survey in Great Britain regarding those who have lived relatively short period - the least satisfied were respondents who lived in Jelgava less than 5 years, while the most satisfied were persons who lived in the city 5 – 10 years and who were born there. However, in Jelgava also respondents who lived more than 10 years were less satisfied with living in the city than those who lived there 5 – 10 years, which can be linked with previous studies (Switek, 2016; Bartram, 2013) where it was discovered that migration event significantly increased satisfaction with life compared

with situation before move, but it did not last more than 6 years and usually returned in previous level.

Table 1

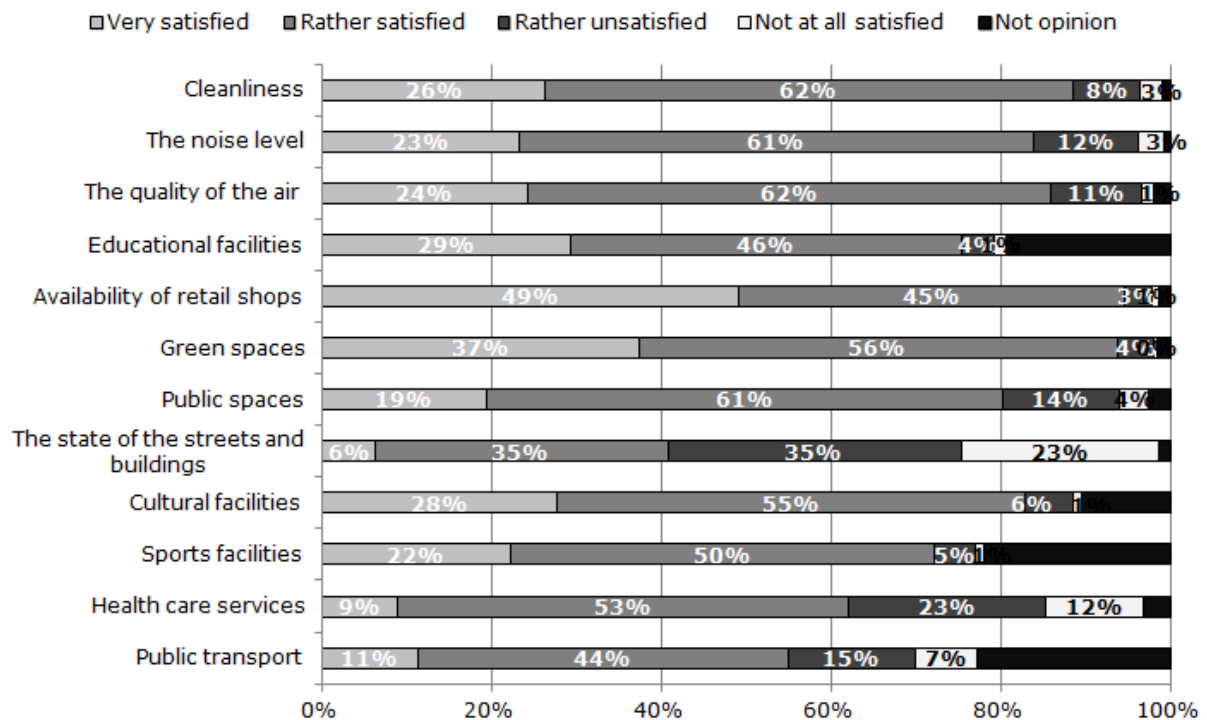
Overall satisfaction with living in Jelgava city, %

		Number of respondents (n)	Satisfied	Unsatisfied	No opinion
Age	14-29	51	88 %	10 %	2 %
	30-64	346	96 %	3 %	1 %
	65+	104	97 %	2 %	1 %
Education	Higher education	185	95 %	4 %	1 %
	Academic secondary education/ vocational secondary education	266	97 %	2 %	1 %
	Basic education	45	91 %	9 %	0 %
	Primary education	4	50 %	50 %	0 %
	No education	1	100 %	0 %	0 %
Household description	Single person	84	96 %	2 %	1 %
	Married without children	105	95 %	4 %	1 %
	Single parent	10	90 %	10 %	0 %
	Married with children	157	97 %	3 %	0 %
	Other	145	92 %	6 %	2 %
Respondent occupation	Workers	304	96 %	3 %	1 %
	Not working	80	90 %	8 %	3 %
	Student	14	86 %	14 %	0 %
	Retired person	103	97 %	2 %	1 %
Lives in the city for...	No answer	1	100 %	0 %	0 %
	Was born there	219	96 %	3 %	0 %
	More than 10 years	222	94 %	5 %	1 %
	5-10 years	30	100 %	0 %	0 %
	Less than 5 years	29	93 %	3 %	3 %
Household composition: number of persons	1	85	96 %	2 %	1 %
	2	134	96 %	4 %	1 %
	3	114	96 %	4 %	1 %
	4	88	95 %	3 %	1 %
	5+	80	93 %	6 %	1 %
Financial situation of household	Satisfied	293	99 %	1 %	0 %
	Unsatisfied	199	91 %	8 %	1 %
	No answer	9	78 %	0 %	22 %

Source: author's calculations based on data of Central Statistical Bureau of Latvia

Overall satisfaction with life in the city is influenced by several elements affecting quality of life, which individual meets in daily life; therefore, in survey respondents were asked to evaluate how satisfied they were with cleanliness, the noise level, the quality of the air, educational facilities, availability of retail shops, green space, public spaces, the state of the streets and buildings, cultural facilities, sports facilities, health care services and public transport. As shown in Figure 2, residents of Jelgava were the most satisfied with availability of retail shops and green spaces, following cleanliness, air quality and the noise level, instead the lowest satisfaction level was with the state of streets and buildings, public transport and health care services. Results illustrate that

people were mainly satisfied with environmental factors, which means that Jelgava provides good, environmentally friendly living residence, while public services are in worse situation and should be improved.



Source: author's calculations based on data of Central Statistical Bureau of Latvia

Fig. 2. Satisfaction with infrastructure, facilities and environment of Jelgava city, %

In comparison with the other biggest cities of Latvia, in Jelgava was the lowest satisfaction level with public transport, which was the same as in Valmiera – only 55 % of respondents were satisfied with it, while in Daugavpils it reached 85 %. In Jelgava, there was observed also second lowest satisfaction level with the state of the streets and building after Jekabpils where satisfaction level was even lower and reached only 36 %. Although satisfaction with healthcare services in Jelgava was only 62 %, compared with other cities it was the second highest result after Jurmala where 64 % of respondents were satisfied with this facility, while in Daugavpils and Rezekne satisfaction level was as low as 45 % and 46 %. Jelgava stood out in comparison with other cities also with educational facilities: there were 75 % satisfied respondents in the city which was the second highest result after Valmiera (81 % satisfied) while in the other cities satisfaction was lower. While satisfaction with environmental factors in Jelgava was high, also results in the other cities showed that respondents were mainly satisfied with air quality, noise level and cleanliness and only residents of Ventspils evaluated air quality (47 % satisfied) and noise level (78 % satisfied) relatively lower.

Although overall satisfaction with living in the Jelgava was relatively high, though also there were some issues which influence life quality in the city. In survey, respondents were asked to mention three the most important issues in Jelgava, and results illustrate (Table 2) that the main issue detected was road infrastructure, which had been mentioned by 62 % of respondents; and this issue was more important for residents who lived in the city for 5 - 10 years, those who were born there and young and financially satisfied persons who likely were the owners of private vehicles and could evaluate the road infrastructure better. In comparison, road infrastructure in

other cities was mentioned slightly less often, from 6 % in Ventspils up to 59 % in Jekabpils. While on average unemployment was the most often mentioned issue in the other cities, in Jelgava it was only in the second place and 52 % of respondents had pointed it out. Among them, more often were those respondents who lived in the city relatively shorter time, young people and people who were not satisfied with households' financial situation. Health care was the third most often mentioned issue as almost every second respondent had mentioned it, and it was a topical problem for older persons over 65 and financially unsatisfied individuals. Other issues such as social services, public transport, housing and safety were mentioned relatively less often, while noise, education and training and air pollution worried only 6 - 7 % of respondents.

Table 2

The most important issues in Jelgava according to respondents, % of respondents who have mentioned the issue

Issue	% of all respondents mentioned the issue	Lives in the city for...				Age			Financial situation of household	
		Was born there	More than 10 years	5-10 years	Less than 5 years	14-29	30-64	65+	Satisfied	Unsatisfied
Road infrastructure	62 %	66 %	59 %	67 %	55 %	71 %	65 %	47 %	69 %	53 %
Unemployment	52 %	58 %	46 %	43 %	72 %	63 %	56 %	36 %	48 %	60 %
Health services	48 %	50 %	47 %	43 %	48 %	35 %	47 %	56 %	45 %	53 %
Social services	24 %	22 %	27 %	20 %	14 %	18 %	20 %	41 %	16 %	37 %
Public transport	16 %	16 %	16 %	27 %	17 %	20 %	17 %	12 %	13 %	22 %
Housing	14 %	16 %	12 %	17 %	7 %	16 %	15 %	9 %	12 %	16 %
Safety	14 %	16 %	13 %	10 %	3 %	14 %	13 %	14 %	15 %	11 %
Noise	7 %	5 %	11 %	0 %	7 %	6 %	8 %	8 %	6 %	10 %
Education and training	7 %	6 %	4 %	20 %	14 %	12 %	8 %	1 %	8 %	6 %
Air pollution	6 %	3 %	9 %	7 %	3 %	2 %	6 %	8 %	7 %	5 %
Number of respondents (n)	501	219	222	30	29	51	346	104	293	199

Source: author's calculations based on data of Central Statistical Bureau of Latvia

A comparison of respondents' answers related to financial situation of household indicates that persons who were not financially satisfied more often than financially satisfied respondents had mentioned issues connected with persons' social well-being, for instance unemployment, health services, social services, housing; while financially satisfied persons had more often pointed out road infrastructure, safety, education and training as well as air pollution. Also, respondents' age influenced persons' opinion about most common issues, and while young people more often than the rest age groups had mentioned problems that were important for them, such as road infrastructure, unemployment, public transport, housing and education, people after 65, in turn, more often had pointed out health services and social services. At last correlation was found also among respondent groups with different duration in the city: persons who had relocated their residence relatively recently were more worried about unemployment compared to other groups; those who lived in Jelgava 5 – 10 years more often than others had mentioned public transport, housing and education (most likely these were young families with children whom preschool

education was topical issue); respondents who had born in the city were worried about road infrastructure, unemployment and health services.

Above mentioned results illustrate that people firstly point out issues that are common with their subjective experience and what bother their individual life; thereby personal experience, well-being and satisfaction have a great impact on overall satisfaction with living environment.

Conclusions, proposals, recommendations

- 1) Overall satisfaction level with living in Jelgava is relatively high – 95.2 % of all respondents were satisfied with life in the city. This satisfaction level was the second highest among other regional cities of Latvia and was on the same level as it was observed in such well-developed cities as Wien and Graz in Austria or Glasgow and Newcastle in the United Kingdom.
- 2) Satisfaction with living in Jelgava was closely related with several indicators that characterized the household's living standard and financial situation – the worse was situation in the household the lower was satisfaction level with life in Jelgava.
- 3) The residents of Jelgava were mainly satisfied with environmental factors, which means that the city provides good, environmental friendly living residence while such indicators as the state of the streets and buildings, health care services and public transport were assessed the lowest. In comparison with other regional cities of Latvia, in Jelgava there was the lowest satisfaction level with public transport and second lowest satisfaction level with the state of the streets and building, while satisfaction with healthcare services and educational facilities was higher than in other cities.
- 4) The main issues facing Jelgava were road infrastructure, unemployment and health services, while noise level, education and training as well as air pollution were the least often mentioned. It was observed that people firstly pointed out issues that were common with their subjective experience and that bothered their individual life; thereby personal experience, well-being and satisfaction had a great impact on overall satisfaction with living environment.
- 5) The results show that Jelgava has high potential to retain current residents and to attract new ones. However city administration should continue to promote economic sustainability and to improve conditions for creation of new job opportunities, as a result financial situation of households could improve and therefore also overall satisfaction with life in the city would increase. Furthermore, as the road infrastructure was mentioned as main and outstanding issue in Jelgava, city administration should seek solutions for faster improvement of road and street conditions, especially in outskirts of Jelgava.

Bibliography

1. Ballas, D., Tranmer, M. (2012). Happy People or Happy Places? A Multilevel Modelling Approach to the Analysis of Happiness and Well-Being. *International Regional Science Review*, 35(1), p. 70-102.
2. Ballas, D. (2013). *What Makes a "Happy City"?* *Cities*, volume 32, p. 539-550.
3. Bartram., D. (2013). Happiness and 'Economic Migration': A Comparison of Eastern European Migrants and Stayers. *Migration Studies*, Volume 1, Issue 2, 1 July 2013, p. 156-175.
4. Cheung, F., Lucas, R. E. (2014). Assessing the Validity of Single-item Life Satisfaction Measures: Results from Three Large Samples. *Quality of Life Research*, v. 23, n. 10, p. 2809-2818.
5. European Commission. (2016). *Quality of Life in European Cities 2015*. Flash Eurobarometer 419. Retrieved: <http://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/Survey/getSurveyDetail/yearFrom/1974/yearTo/2016/surveyKy/2070>. Access: 15.12.2017.
6. Gray, D. (2014). Financial Concerns and Overall Life Satisfaction: A Joint Modelling Approach. *Sheffield Economic Research Paper Series*, p. 1-32.

7. Kaklauskas, A., Zavadskas, E.K., Radzeviciene, A., Ubarte, I., Podvezko, A., Podvezko, V., Kuzminske, A., Banaitis, A., Binkyte, A., Bucinskas, V. (2018). *Quality of City Life Multiple Criteria Analysis*. Cities. Volume 72, p. 82-93.
8. Mehlsen, M., Platz, M., Fromholt, P. (2003). *Life Satisfaction Across the Life Course: Evaluations of the Most and Least Satisfying Decades of Life*. International Journal of Aging & Human Development. 57(3): p. 217-36.
9. Okulicz-Kozaryn, A., Valente, R.R. (2018). *Livability and Subjective Well-Being Across European Cities*. Applied Research in Quality of Life, p. 1-24.
10. Pittau, M.G., Zelli, R., Gelman, A. (2010). Economic Disparities and Life Satisfaction in European Regions. Springer. Social Indicators Research, 96, 339-361.
11. Plagnol, A. (2010). Subjective Well-being Over the Life Course: Conceptualizations and Evaluations. Social Research: an international quarterly of the social sciences, 77(2), pp. 749-768.
12. Rosu, L., Corodescu, E., Blageanu, A. (2015). *Does Geographical Location Matter? Assessing Spatial Patterns in Perceived Quality of Life in European Cities*. European Journal of Geography, Volume 6, Issue 2, p. 15-34.
13. Shaker, R.R. (2015). *The Well-being of Nations: An Empirical Assessment of Sustainable Urbanization for Europe*. International Journal of Sustainable Development and World Ecology, Volume 22, Issue 5, p. 375-387.
14. Sorensen, J.F.L. (2014). *Rural-Urban Differences in Life Satisfaction: Evidence from the European Union*. Regional Studies, Volume 48, Issue 9, p. 1451-1466.
15. Switek, M. (2016). Internal Migration and Life Satisfaction: Well-Being Paths of Young Adult Migrants. Social Indicators Research, 125, p. 191-241.
16. Qu, L., De Vaus, D. (2015). *Life Satisfaction Across Life Course Transitions*. Australian Family Trends, No. 8. Retrieved: <https://aifs.gov.au/publications/life-satisfaction-across-life-course-transitions>. Access: 05.01.2018.
17. Turksever, A. N. E., & Atalik, G. (2001). *Possibilities and Limitations for the Measurement of the Quality of Life in Urban Areas*. Social Indicators Research, 53(2), p. 163-187.
18. Weziak-Bialowolska D. (2016). Quality of Life in Cities – Empirical Evidence in Comparative European Perspective. Cities 58, p. 87-96.
19. Zenker, S., Petersen, S., & Aholt, A. (2013). The citizen satisfaction index (CSI): Evidence for a four basic factor model in a German sample. Cities, 31, 156-164.

TRENDS IN CHANGES OF OUTCOMES AND INVESTMENT OUTLAYS IN ENVIRONMENTAL PROTECTION AND WATER MANAGEMENT IN SPATIAL TERMS IN POLAND

Barbara Golebiewska¹ PhD hab., prof. WULS

¹Warsaw University of Life Sciences, Faculty of Economic Sciences, Poland

Abstract. Increased use of resources, plundering economy, and intensification of environmental pollution raises continuously more problems. The question arises: in what way could such a phenomenon be prevented. After Poland's accession to the EU, there has been significant progress in environmental protection. It was caused, among other factors, by an increase in expenditures on fixed assets for environmental protection.

The objective of the study is to assess activities in the field of wastewater management and water protection in financing investments on fixed assets. It was discovered that spatially these expenditures were remarkably diverse. Significant differences in outlays also occurred between rural and urban areas.

Key words: environmental protection, investment, expenditures.

JEL code: Q5, Q50

Introduction

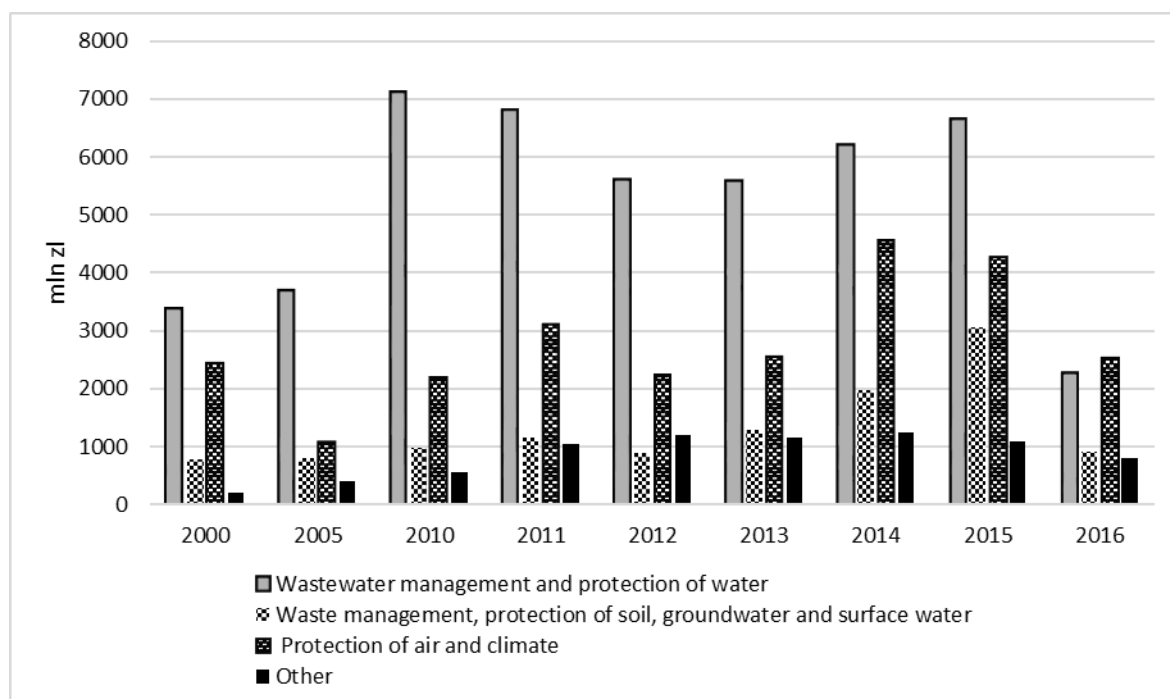
Increasing use of environmental resources by population creates many problems that not only deteriorate environmental value but also may be a threat to the society's safety and well-being. Environmental problems deriving from intense utilization of materials regard both environment and society (Golebiewska B. et al., 2016). The must for counteracting these problems causes the demand for measuring the influence and impact of human actions (new technologies, techniques) on environment. However, it becomes more difficult because, as Simmons (1979) stated in the 70s, it is not wise to evaluate the impact of human on environment, because the loss of environmental values cannot be expressed in monetary values. It is still relevant today, though increasingly more often there are attempts of assessing those values (e.g. Wilkin J., 2010; Brelik A., 2013; Pajewski T., 2016), even though these are priceless goods (non-marketable goods). Zylicz (2007) brings attention to that, pointing that a few decades ago economy was helpless in evaluating non-marketable goods. It is worth discussing how accurate those assessments are in comparison to the real value of public goods. Using those measures may be helpful though in evaluating amends (fees) for generating devastation to the environment.

In recent years in Poland, especially after joining the EU, a significant advance has been made in environmental protection. The main cause of that was the need to meet numerous obligations against the EU. Hence there is a need to increase environmental expenditure. According to Wicki and Wicka (2016), Golebiewski, Rakowska (2017) in order to introduce new solutions, financial resources are needed for this purpose, which are not always sufficient. In the last decade, significant growth in the outlays on fixed assets for environmental protection has been made. Amongst those outlays, there are expenditures on atmospheric air and climate protection, wastewater management and water conservation, waste management, preservation of soil and restoring its agricultural value, protection of underground and surface water, reduction in noise and vibration, biodiversity and landscape conservation and protection against ionizing radiation (Environment 2016).

Research and analysis in the field of environmental protection expenditures are increasingly undertaken by many authors (including Famielec J. (ed.), 2005; Koziol J., 2005; Poskrobko B., 2007; Bujanowicz-Haras B., 2009; Fura B., 2010; Golebiewska B., Slusarz G., 2014). The sources and directions of investment are being assessed. Economic aspects of environmental protection are the subject of many studies concerning, among others, development of agriculture in protected

¹Corresponding author. E-mail address: barbara_golebiewska@sggw.pl; ORCID:0000-0003-4073-5274

areas (Boltromiuk A., 2003), determinants of eco-development in protected areas (Poplawski L., 2009), or analysis of Natura 2000 protected areas (Kłodzinski M., 2012). The aim of the study is to assess environmental protection measures in the field of sewage management and water protection in terms of financing investments in fixed assets used for this protection. The investments related to wastewater management and water protection include equipment for the disposal and treatment of industrial and municipal wastewater, rainwater (sewage) and contaminated mine water discharged directly into surface waters and into the ground. These include mainly sewage treatment plants or their elements in accordance with the purification technology (mechanical, chemical, biological and increased biogenic removal), also include individual household sewage treatment plants and investments related to the preliminary sewage treatment, devices for the economic use of sewage, for the utilization, collection and transport of waters. The scope of data also includes construction of a sanitary sewage system discharging sewage and rainwater, equipment for processing and management of sludge from sewage treatment plants, circulating water supply systems, safeguards against penetration to rivers, seas and other water reservoirs pollutants arising in water transport, creation of protection zones for sources and water intakes (Environment, 2016). Expenditures for fixed assets concerning sewage management and water protection have been selected for the research, since they were the main direction of spending funds for environmental protection in Poland (Figure 1). As indicated also in the Guidance on wastewater management in the context of the implementation of the national municipal wastewater treatment program (Poradnik ..., 2010), Council Directive 91/271/EEC concerning urban wastewater treatment is one of the most expensive and difficult to implement EU legal acts. At the same time, it plays a fundamental role in the management of municipal sewage and the protection of the aquatic environment, including surface waters to which they are discharged. Therefore, this issue and its implementation can be considered as one of the main problems in the field of environmental protection.



Source: Environment 2016. Notatka informacyjna GUS, 2017, https://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5484/4/6/1/naklady_na_srodki_trwale_sluzace_ochronie_srodowiska_i_gospodarce_wodnej_w_polsce_w_2016.pdf, access 21.01.2018

Fig. 1. Outlays on fixed assets for environmental protection by investment directions

Research methodology

Information on expenditure of fixed assets for environmental protection and their material effects since 1999 is presented in accordance with the Polish Statistical Classification on Activities and Equipment Related to Environmental Protection introduced by the Regulation of the Council of Ministers of March 2, 1999 (Dz.U. 1999 nr 25 poz. 218). These documents contain information on both global, regional and local problems, including waste, sewage, water and soil protection, noise reduction and biodiversity and landscape conservation. In Poland, there is considerable spatial differentiation in the situation of agricultural production. Among others, Franc-Dabrowska (2013) draws attention to this. This also applies to investments in environmental protection. This is related, to the specificity of regions or smaller (local) territorial units that have an impact on the pace and directions of both economic and social development. The study analyses the expenditures in spatial layout in Poland by voivodships. Data pointing to the differences between urban and rural areas have been used as well.

In urban areas, due to greater population, environmental problems are more noticeable. Large cities generate a very high demand for resources and "produce" more waste, or sewage. For this reason, they may require higher investment outlays for devices to prevent ecological instability. Selected research tasks:

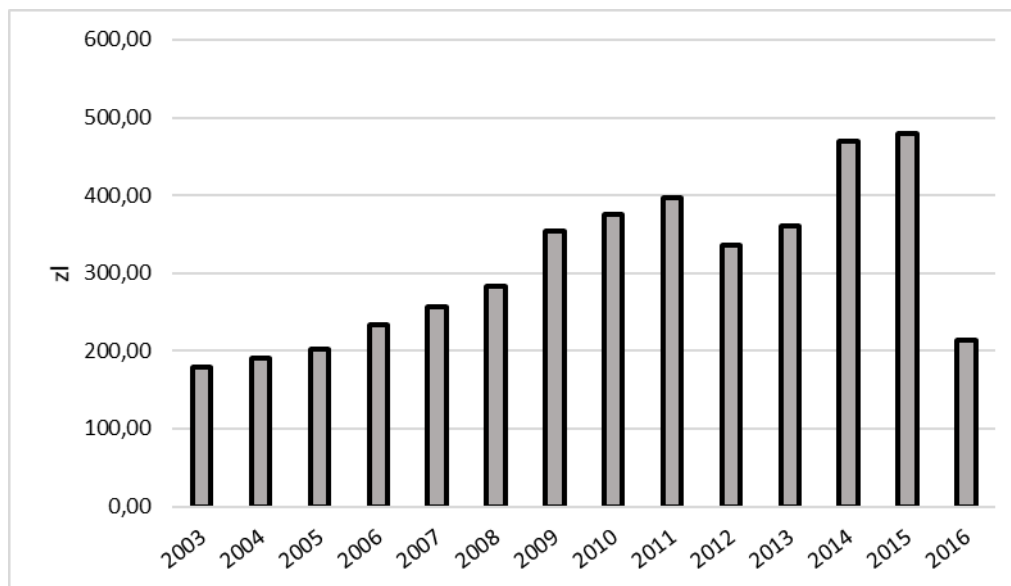
- displaying the level of outlays for wastewater management and water protection in entire country of Poland and in separate voivodships;
- determining of the number of residents using sewage treatment plants, as well as individual treatment plants, mainly in rural areas. The following analyses were used: GUS (Central Statistical Office) data in the field of environmental protection, information from the Chief Inspectorate for Environmental Protection, data from the Local Data Bank, information published by the Ministry of the Environment, the National Water Management Board and available literature on the subject.

Research results and discussion

Changes in the level of expenditures on wastewater management and water protection

High priority in environmental protection has been given to restoring water purity. Adapted to the requirements of EU directives, the National Programme for Municipal Waste Water Treatment (NPMWWT) was supposed to equip all agglomerations above 2 thousand residents in collective sewage systems and municipal wastewater treatment plants by 2015. Pre-accession conversations negotiated adaptive transitional periods for the introduction of the above-mentioned regulations by the end of 2015. In the years 2000-2015, 851 municipal wastewater treatment plants were created (Environment, 2016). However, the assumptions were not accomplished, and the document has already been updated fifth time. It assumes creating in 2016-2021 116 new wastewater treatment plants and other investments on 1010 wastewater treatment plants (Biuletyn ..., 2017). The reasons for many delays, according to data from municipalities reports, are lengthy administrative and preparatory procedures for investments, long-term tendering procedures resulting from public procurement regulations, lengthy procedures for preparing and signing memoranda for co-financing projects from EU funds, problems related to land ownership, or also the lack of financial resources for implementation (Sprawozdanie ..., 2014).

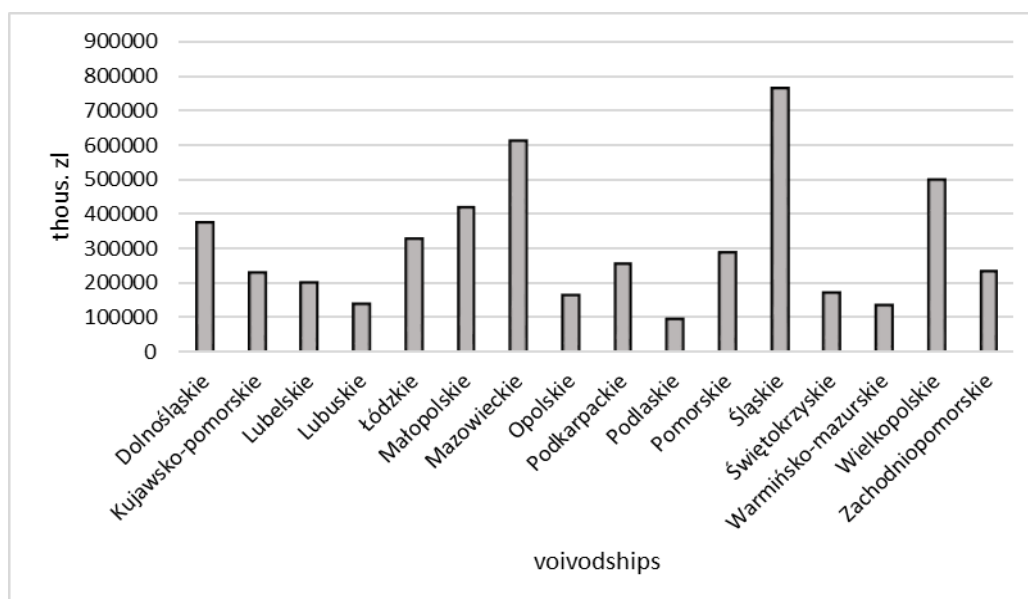
In Poland, in the years 2003-2016, there were significant differences in expenditure on wastewater management and water protection. This can be observed while comparing the values calculated per capita (Figure 2).



Source: *Environment (2017)*. GUS, 2017, Retrieved: <https://stat.gov.pl/en/topics/environment-energy/environment/environment-2017,1,9.html>, access 21.01.2018

Fig. 2. **Outlays on fixed assets for environmental protection and water management per capita**

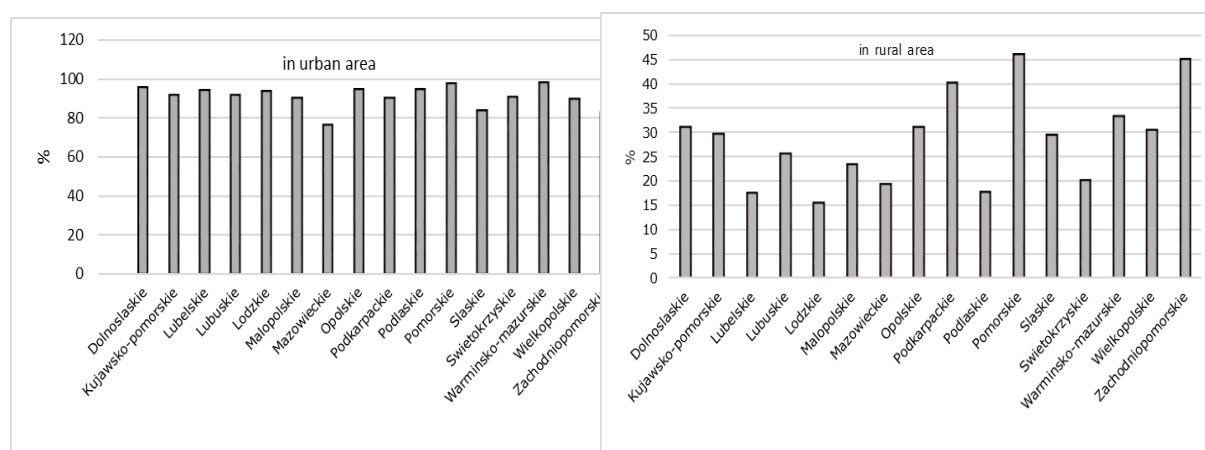
Since 2004, slow but steady growth was observed in environmental protection expenditures, due to utilisation of EU funds for co-financing investment projects. The situation lasted until 2011. In 2012-2013, expenditures became lower to grow again in 2014-2015. In 2016, expenditures dropped down dramatically, it might have been caused by finalising many investments financed from EU funds for the years 2007-2013 and due to the fact that since 2016, the funds for 2014-2020 have not yet been completely utilised. Data in spatial terms, presented in Figure 3, point to the highest outlays in Slaskie and Mazowieckie voivodeship in the analysed period. High expenditures also occurred in Wielkopolska, Dolny Slask and Malopolska. It was caused, among other factors, due to occurrence of large urban areas in these regions, in which investments are more common than in the rural areas.



Source: Environment (2017). GUS, 2017, Retrieved: <https://stat.gov.pl/en/topics/environment-energy/environment/environment-2017,1,9.html>, access 21.01.2018

Fig. 3. Expenditure on the wastewater economy on average in the years 2002-2016 by voivodships

Determination of demand for investments in wastewater management requires determining existing needs. Because of the lack of information about the number of required investments, the ratio of people using sewage treatment plants to the number of citizens of voivodeship was established. This information allows identifying needs for further investments. Because of large contrast in the amount of people using sewage treatment plants between rural and urban areas, analysis also included such spectrum (Figure 4).

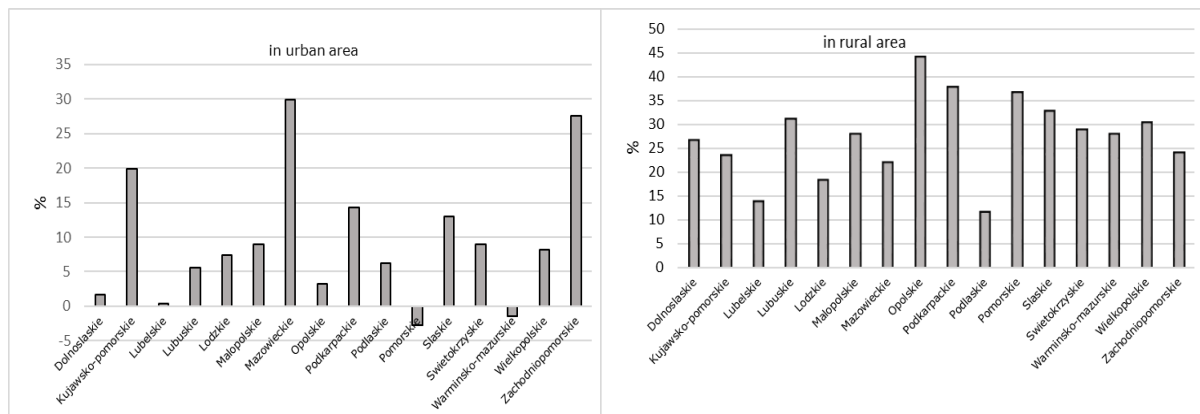


Source: author's calculation based on Local Data Bank. Retrieved: bdl.stat.gov.pl/BDL/metadane/podgrupy/305 Access: 11.01.2018

Fig. 4. Average share of people using sewage treatment plants in the years 2002-2016 by voivodships

The data presented indicate that in the cities the lowest share of population, whose household is connected to the sewage system, was the Mazowieckie voivodeship (less than 80 %). Rural areas generally have close to half of that number of residents using the connection to the sewage system. The largest share was held by the Pomorskie and Zachodniopomorskie voivodships, although this share was still less than 50 %. This indicates how much work still needs to be done regarding wastewater treatment plants in rural areas. Analysing changes in the scope of growth or

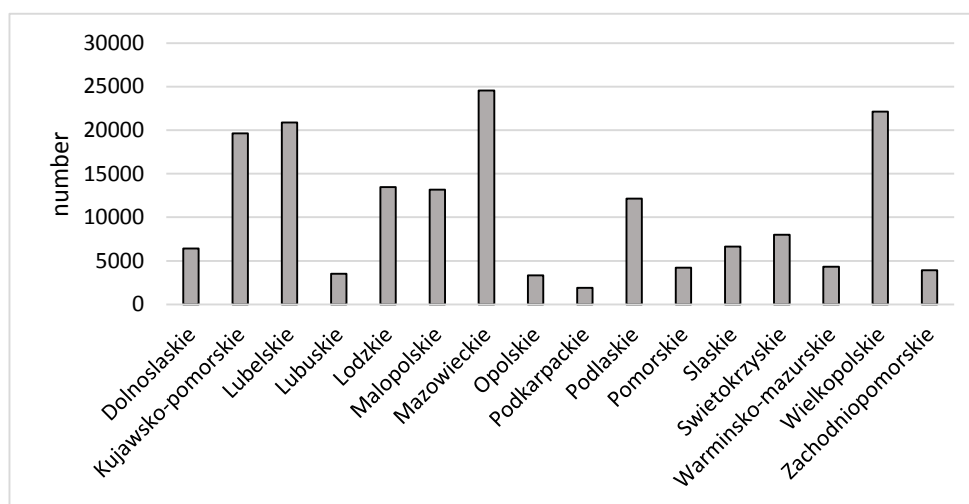
decrease in the share of urban and rural residents using sewage treatment plants, it should be noted that since the beginning of the twenty-first century there have been major changes in rural areas (Figure 5). These changes ranged from 10 % (Podlaskie voivodship) to even more than 40 % (Opole voivodship). This indicates high demand and existing shortages in rural areas in the scope of existing sewage treatment plants.



Source: author's calculation based on Local Data Bank. Retrieved: /bdl.stat.gov.pl/BDL/metadane /podgrupy/305, Access: 11.01.2018

Fig. 5. Changes in the share of population using sewage treatment plants in the total population in cities and in rural areas in the years 2002-2016 (%)

In cities, these changes were not so large, which is due to the large number of existing treatment plants. However, the Mazowieckie and Zachodniopomorskie voivodeships were also characterized by a significant increase in the number of residents using the treatment plant. From the presented results it could be concluded that the situation in rural areas is still unfavourable. Although it should also be considered that there are many individual wastewater treatment plants in the countryside (Figure 6).

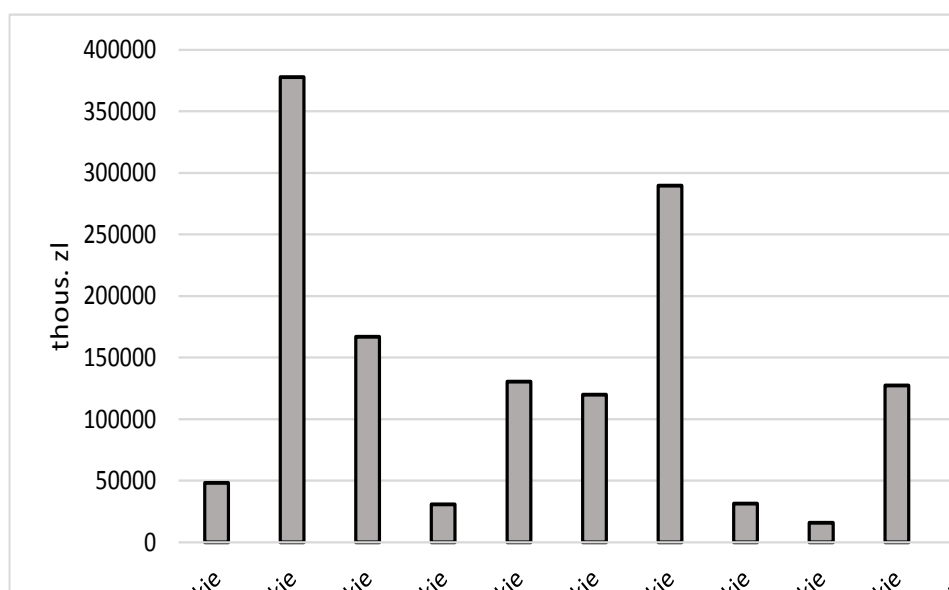


Source: author's calculation based on Local Data Bank. Retrieved: /bdl.stat.gov.pl/BDL/metadane /podgrupy/305, Access: 11.01.2018

Fig. 6. Individual rural wastewater treatment plants commissioned for use in the years 2002-2016 (pcs)

In the years 2003-2016, the largest number of such sewage treatment plants was established in Mazowsze and Wielkopolska. A considerable number of home treatment plants also distinguished the Lubelskie and Kujawsko-Pomorskie Voivodeships. The number of sewage treatment plants was

not always associated with an increase in outlays. Data presented in Figure 7 indicate that the highest expenditures were incurred in the Kujawsko-Pomorskie Voivodeship and then Mazowieckie.



Source: author's calculation based on Local Data Bank. Retrieved: [/bdl.stat.gov.pl/BDL/metadane/podgrupy/305](http://bdl.stat.gov.pl/BDL/metadane/podgrupy/305), Access: 19.01.2018

Fig. 7. Investment expenditures for individual rural wastewater treatment plants in the years 2003-2016

In Wielkopolska, many sewage treatment plants were also built, while expenditures were lower than, for example, in Podlaskie, where despite higher expenditures than in the Wielkopolskie voivodeship, less sewage treatment plants were created. This points to a differentiation in the size, efficiency or innovation of the treatment plants being constructed.

Conclusion

Wastewater management and water protection in Poland is one of the main directions of spending expenditure on fixed assets in the field of environmental protection. In the case of sewage management and water protection in 2016, around 77 % were invested in the construction of a sewerage network and 20 % for wastewater treatment.

It was found that there is a significant variation in the expenditures incurred between the cities and the rural areas. In cities, due to greater population, environmental problems are more noticeable. Hence, big cities generate more rubbish, waste or sewage. The share of people using wastewater treatment plants in rural areas is much lower than in cities, although in the case of villages private sewage treatment plants need to be considered. Therefore, there is still a need to contribute higher expenditure on wastewater management and water protection in rural areas. In addition to financial resources, attention should be turned to other reasons for many shortcomings and delays in the implementation of investments. The main ones, among others, are chronic administrative procedures and preparatory procedures for investments or long-term tendering procedures.

After Poland's accession to the EU, there has been significant progress in environmental protection, including limiting the dependence of economic growth on environmental pressures. Further actions in environmental protection expenditures, including wastewater management and water protection, are a priority in the process of implementing the principles of pro-environmental activities in economic development. Membership in the EU requires the implementation of many

obligations related to maintaining requirements in environmental protection, and in this respect a high priority has been given to restoring water purity and expenditure on wastewater management.

Bibliography

1. Biuletyn Informacji Publicznej Ministerstwa Środowiska 2017. Krajowy program oczyszczania ścieków komunalnych (*Bulletin Public Information of the Ministry of the Environment. National Programme for Municipal Waste Water Treatment*). Retrieved: <http://www.kzgw.gov.pl/>. Access: 14.01.2018.
2. Boltromiuk, A. (2003). Ekonomiczne aspekty funkcjonowania obszarów chronionych (*Economic aspects of the functioning of protected areas*). Wyd. Uniwersytetu Białostockiego. p. 267. Białystok.
3. Brelik, A. (2013). Dobra publiczne a zrównowazony rozwój agroturystyki – w poszukiwaniu wskaźników wyceny. (*Public goods and sustainable development of agritourism - in search of valuation indicators*). Materiały konferencyjne z IX kongresu PTE, Polskie Towarzystwo Ekonomiczne (*Polish Economic Society*) Retrieved: <http://kongres.ptc.pl/kongres/do-pobrania.html>. Access: 18.12.2017.
4. Bujanowicz-Haras, B. (2009). Regionalne zróżnicowanie nakładów inwestycyjnych na ochronę środowiska w Polsce (*Regional diversification of investment outlays for environmental protection in Poland*). Ochrona Środowiska i Zasobów Naturalnych (*Environmental Protection and Natural Resources*), no 41, pp. 355-361.
5. Dz.U. 1999 nr 25 poz. 218. (*Journal of Laws* No. 25, item 218), Rozporządzenie Rady Ministrów z dnia 2 marca 1999 r. w sprawie Polskiej Klasyfikacji Statystycznej Dotyczącej Działalności i Urządzeń Związanych z Ochroną Środowiska.
6. Environment (2016). Notatka informacyjna GUS, 2017, Retrieved: https://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5484/4/6/1/naklady_na_srodki_trwale_sluzace_ochronie_srodowiska_i_gospodarce_wodnej_w_polsce_w_2016.pdf. Access 21.01.2018.
7. Environment (2017). *Statistical Information and Elaborations*. Central Statistical Office. Warszawa. p. 551.
8. Famielec, J. (ed.) (2005). System finansowania ochrony środowiska w Polsce (*The system of financing environmental protection in Poland*), AE, Kraków.
9. Franc-Dąbrowska, J. (2013). Regional Diversification of Financial Situation of Agricultural Enterprises in Poland. *Earth Bioresources and Life Quality* 2013, No 4.
10. Fura, B. (2010). Nakłady inwestycyjne w ochronie środowiska a realizacja założeń rozwoju zrównowoczonego (*Capital Investments in Environmental Protection in View of the Accomplishment of the Sustainable Development Assumptions*). *Nierówności społeczne a wzrost gospodarczy*, no 17, pp. 303-301. Retrieved: ur.edu.pl/pliki/Zeszyt17/23.pdf. Access: 31.01.2018.
11. Golebiewska, B., Chlebicka, A., Maciejczak, M. (2016). Rolnictwo a środowisko. Biodrobnorodność i innowacje środowiskowe w rozwoju rolnictwa (*Agriculture and the environment. Biodiversity and environmental innovations in agricultural development*). Wyd. Wies Jutra. Warszawa. p. 123.
12. Golebiewska, B., Ślusarz, G. (2014). Zróżnicowanie nakładów na ochronę środowiska na terenach wiejskich w ujęciu regionalnym w latach 2005–2012 (*Diversification of Natural Protection Investments in Rural Areas in 2005-2012 (Regional Perspective)*). *Zeszyty Naukowe SGGW w Warszawie. Ekonomika i Organizacja Gospodarki Żywnościowej*, no 107, pp. 93-102.
13. Golebiewski, J., Rakowska, J. (2017). *Production and use of bioenergy in Poland in the context of the development of bioeconomy*. Proceedings of the International scientific conference Rural Development 2017, Bioeconomy challenges, pp. 274-280. <http://doi.org/10.15544/RD.2017.195>.
14. Grzebyk, B. (2010). Finansowanie ochrony środowiska w Polsce (*Financing environmental protection in Poland*), *Nierówności Społeczne a Wzrost Gospodarczy*, z. 16, pp. 293-302.
15. Kłodzinski, M., (2012). *Barriers to Multifunctional Development of Rural Areas*. *Wies i Rolnictwo*, nr 2, pp. 40-56.
16. Koziol, J. (2005). Polski system finansowania ochrony środowiska naturalnego. *Rocznik Żyrardowski* 3, pp. 29-45. Retrieved: http://mazowsze.hist.pl/29/Rocznik_Zyrardowski/655/2005/23538/. Access: 31.01.2018.
17. Pajewski, T. (2016). The External Effects in Agriculture and Methods for Regulating. *Journal of Agribusiness and Rural Development* 2016, nr 2, pp. 375-383.
18. Popławski, L. (2009). Uwarunkowania ekorozwoju gmin wiejskich na obszarach chronionych województwa świętokrzyskiego (*Conditions of eco-development of rural communes in protected areas of the Świętokrzyskie voivodship*). PWN. Warszawa. P. 367.
19. Poradnik dotyczący gospodarki ściekowej w kontekście wykonania krajowego programu oczyszczania ścieków komunalnych. (2010). Krajowy Zarząd Gospodarki Wodnej. Retrieved: www.kzgw.gov.pl/files/kposk/06-materiały/poradnik-KPOSK.doc. Access: 31.01.2018.
20. Poskrobko, B. (red.) (2007). Zarządzanie środowiskiem (*Environmental management*), PWE, p. 328, Warszawa.
21. Simmons, I.G. (1979). *Ekologia zasobów naturalnych (The ecology of natural resources)*. PWN, Warszawa. P. 502.
22. Sprawozdanie z wykonania krajowego programu oczyszczania ścieków komunalnych w latach 2012-2013. (2014). (*Report on the implementation of the national municipal wastewater treatment program in 2012-2013*), Ministerstwo Środowiska, p. 35. Warszawa.
23. Wicki, L., Wicka, A. (2016). *Bio-Economy Sector in Poland and its Importance in the Economy*. *Economic Science for Rural Development*, 41, 219-228.

24. Wilkin, J. (2010). Wielofunkcyjność rolnictwa (*Multifunctionality of agriculture*). Kierunki badań, podstawy metodologiczne i implikacje praktyczne, Warszawa, IRWiR PAN.
25. Zylicz, T. (2007). Wycena dóbr nierynkowych (*Valuation of non-marketable goods*), *Aura*, Retrieved: <http://coin.wne.uw.edu.pl/tzylicz/aura.html>. Access 20.11.2017.

PROBLEMS OF TEACHERS' LABOUR RIGHTS IN REGIONS OF LATVIA

Anda Grinfelde¹, Dr.oec.; **Līga Paula**², Dr.sc.soc.; **Ilze Prizevoite**³, Mg.oec.

^{1, 2, 3} Latvia University of Life Sciences and Technologies

Abstract. The authors in the paper present some results of the study on teachers' labour rights, which was carried out in collaboration with the Latvian Trade Union of Education and Science Employees (LIZDA) from August until October 2017. The focus of the paper is on regional disparities regarding teachers' labour rights and the analysis of the teachers' opinions collected in the on-line survey. The aim of the research was to investigate, how teachers assessed their knowledge on the labour rights and protection of their rights in educational institutions as well as what are the problems in this field from the perspective of the teaching staff. Two research questions are addressed in this paper: (1) what problems teachers face in relation to their labour rights in different regions of Latvia, and (2) what are possible solutions at institutional, municipal and the state levels to improve the protection of teachers' labour rights. The mixed method sequential explanatory research design was used in the study: firstly, the focus group discussion was organized with experts from the field of education; secondly, the quantitative survey of the teachers was conducted via web tool visidati.lv (n=2055), and finally the panel discussion was organized to discuss the survey results and to seek proposals how to improve protection of the teachers' labour rights. The results witness about regional disparities and the fact that great part of the respondents does not feel protected when faces violation of their rights. However, many respondents reported on well-established practices in their schools, and support from administration and municipalities.

Key words: labour rights, teachers, educational institutions, regions, trade union.

JEL code: R23, K31

Introduction

Claiming on stronger protection of labour rights, F. Hendrickx, A. Marx, G. Rayp and J. Wouters emphasize that empirical research and studies witness both downward trend in labour rights protection around the world and the impact of the globalization of economic activities on labour rights (Hendrickx F., Marx A., Rayp G., Wouters J., 2016). Neo-liberal policies and economic crises force the governments to adopt decisions which in long-term negatively affect income and social security of workers (ETUCE, 2017) thus threatening stability of society and its middle class to which school teachers have traditionally associated with (Vaughan-Whitehead D., Vazquez-Alvarez R., Maitre N., 2016). In spite of governmental incentives to improve remuneration system and working conditions in rural and urban schools in Latvia, there is a still significant difference, for example, in salaries and workloads among regions what teachers consider as violation of their labour rights. Thus, the focus in the paper is on regional disparities regarding teachers' labour rights and the analysis of the teachers' opinions collected during teachers' survey in collaboration with the Latvian Trade Union of Education and Science Employees (LIZDA).

The mixed method sequential explanatory research design was used in the study comprising focus group discussion, quantitative survey and panel discussion. The aim of the research was to investigate, how teachers assessed both their knowledge on their labour rights and protection of the rights in their educational institutions as well as the problems in this field from the perspective of the teaching staff. This paper seeks to answer two research questions: (1) what problems teachers face in relation to their labour rights in different regions of Latvia, and (2) what are possible solutions at institutional, municipal and the state levels to improve the protection of teachers' labour rights. Theoretical considerations of the research are based on the literature and studies on labour rights, teachers' rights and available statistics.

¹Corresponding author. Tel.: +371 29265476 E-mail address: Anda.Grinfelde@llu.lv

²Corresponding author. Tel.: +371 26321667 E-mail address: Liga.Paula@llu.lv

³Corresponding author. Tel.: +371 26683551 E-mail address: ilze.prizevoite@lizda.lv

Research methodology

To obtain empirical data, the mixed method sequential explanatory research design was employed (Creswell J. W., Plano Clark V. L., Gutmann M. L., Hanson W. E., 2003) with the following research stages: (1) the focus group discussion with eight experts from institutions related to education and policy making was organized on 17 August 2017; (2) the quantitative survey of the teachers (n=2055) via web tool *visidati.lv* was conducted in September and October 2017; (3) the results of the survey were presented in LIZDA annual conference on 22 November 2017, which was concluded with the panel discussion on possible solutions to improve the protection of teachers' labour rights at institutional, municipal and the state levels. The web tool *visidati.lv* was used as it was convenient for the respondents. During the focus group, the main problematic issues and risks related to the violations and insufficient protection of teachers' labour rights were identified. These conclusions and assumptions were turned into the statements, included in the survey, and assessed by the teachers using Likert scale. Information about the survey was disseminated in schools, via social media and web page *eklase.lv*. The research sample was made of 2055 teachers from all statistical regions of Latvia (Zemgale, Vidzeme, Kurzeme, Latgale, Riga and Pieriga) representing all levels of general education including pre-school. 889 (43.7 %) respondents of the sample are teachers residing in cities, whereas 1157 or 56.3 % of teachers are from rural municipalities including small towns. 94.8 % or 1948 respondents are female and 5.2 % (107) are male. Two-thirds (68 %) of the sample are in the age group between 40 to 59 years. 34 % of the teachers have in-service experience in school over 30 years and for almost 30 % of the respondents work experience in school is between 21 to 30 years. 66.9 % of the sample are LIZDA members and few teachers – members of other trade unions whereas one-third of the respondents are not members of trade unions. SPSS software was used for the data analysis.

Research results and discussion

1. Conceptualization of the teachers' labour rights

Teachers are entitled the same fundamental labour rights as workers of other occupations. However, due to the specificity of their profession some specific rights need to be included. They are defined in the General Education Law (*Visparīgās izglītības likums*), in the Education Law and its Section 52 "Rights of Teachers" and Section 53 "Work Remuneration of Teachers" in particular (*Izglītības likums*), and in the internal rules and regulations adopted in every educational institution.

There are supporters of opinion that labour rights (in other references - workers' rights) actually are human rights (for example, Gross A. J., 2006; Alston P. , 2005). Indeed, particular worker rights are already defined, for example, in the Articles 23, 24, and 25 of the Universal Declaration of Human Rights (United Nations General Assembly, 1948). Still, this opinion is not unequivocal and as V. Mantouvalou states "If labour rights are incorporated in human right documents, they are human rights" (Mantouvalou V., 2012, p. 151). In 1919, the International Labour Organization (ILO) was established to promote social justice. ILO's international labour standards are closely linked to the ILO's 1998 Declaration on Fundamental Principles and Rights at Work and state that all Members have an obligation to respect, to promote and to realize the principles concerning the fundamental rights that are:

- (a) freedom of association and the effective recognition of the right to collective bargaining;

¹Corresponding author. Tel.: +371 29265476 E-mail address: Anda.Grinfelde@llu.lv

²Corresponding author. Tel.: +371 26321667 E-mail address: Liga.Paula@llu.lv

³Corresponding author. Tel.: +371 26683551 E-mail address: ilze.prizevoite@lizda.lv

- (b) the elimination of all forms of forced or compulsory labour;
- (c) the effective abolition of child labour;
- (d) the elimination of discrimination in respect of employment and occupation (ILO, 2003).

Also, the Treaty of Rome (1957) referred to workers' rights „which obliged the European Communities Member States to promote the improvement of living and working conditions for workers, and required them to collaborate on a number of questions relating to employment“ (Arrigo G., Casele G., 2005, p. 265). Latvia has developed its national legal framework and normative regulations in the respective field (Darba likums); it has also ratified 45 ILO Conventions, as well as both International Covenants and the European Convention on Human Rights (National Labour Law...). Latvia has ratified 25 Articles of the European Social Charter (Revised) (Council of Europe, 1996) and those related to the labour rights are presented in the Table 1. However, social partners in Latvia negotiate on ratifying also other Articles of the Charter which have not been ratified yet mostly due to their fiscal impact on the national budget.

Table 1

Articles of the European Social Charter (Revised) ratified by the government of Latvia, 2017

Articles	Title of the Article
Article 2	The right to just conditions of work
Article 4	The right to a fair remuneration (paragraphs 2, 3, 4 and 5)
Article 5	The right to organise
Article 6	The right to bargain collectively
Article 21	The right to information and consultation
Article 22	The right to take part in the determination and improvement of the working conditions and working environment
Article 26	The right to dignity at work
Article 28	The right of workers' representatives to protection in the undertaking and facilities to be accorded to them
Article 29	The right to information and consultation in collective redundancy procedures

Source: *Nacionalas trispusejas sadarbības...*, 2017; Council of Europe, 1996

In their study, B. Achinstein, R.T. Ogawa and A. Speiglmán discuss that in socialization of new teachers, state educational policies, local district and school conditions interact with teachers' personal and professional backgrounds, even reinforcing educational inequalities (Achinstein B., Ogawa R.T., Speiglmán A., 2004). D. Hill in his study analyses impacts of neo-liberalisation on education workers' securities (pay and salaries, conditions of employment, stresses and pressures at work, and their work identity and status) as well as on the rights and powers of education trade unions (Hill D., 2005). Due to economic crisis, policy makers in Europe favour quantitative adjustments such as cuts in public sector jobs and wages, and spending cuts, therefore, "employment security is no longer the norm in the public sector" (Vaughan-Whitehead D., Vazquez-Alvarez R., Maitre N., 2016, p. 31). This has direct impact on professionals from the public sector traditionally forming middle class, for example, teachers and doctors and their income and social security. As D. Vaughan-Whitehead, R. Vazquez-Alvarez and N. Maitre state (2016, p. 31), in education the process can be characterized by such indicator as higher ratios of teachers and students in classes; significant wage cuts often are due to a weakening of collective bargaining "through a number of reforms included on fiscal consolidation packages" (2016, p. 27). The

¹Corresponding author. Tel.: +371 29265476 E-mail address: Anda.Grinfelde@llu.lv

²Corresponding author. Tel.: +371 26321667 E-mail address: Liga.Paula@llu.lv

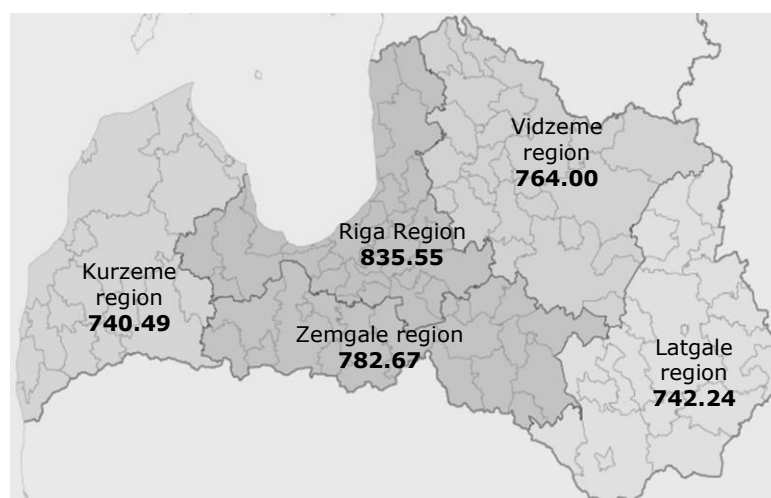
³Corresponding author. Tel.: +371 26683551 E-mail address: ilze.prizevoite@lizda.lv

authors also refer to limited collective bargaining in the Baltic States and Hungary (Vaughan-Whitehead D., Vazquez-Alvarez R., Maitre N., 2016, p. 43). It should be stressed here that the right to collective bargaining is one of the workers' fundamental rights.

Among OECD countries there are significant differences in remuneration of teachers, tasks and responsibilities teachers do, workloads (including amount of time that teachers spend for teaching and non-teaching activities), and respective policies (OECD, 2017). In 2017, UNESCO in relation to the World Teachers' Day called for greater attention towards teachers' academic freedom, decent working conditions for all teachers, and pointed that "across all education levels, political pressure and business interests can curb the ability of educators to teach in freedom" (UNESCO, 2017). Previous studies in Latvia show, that teachers in general are satisfied with particular aspects concerning their rights: the decision making process in schools is characterised as mostly democratic, teachers are satisfied with working conditions and the choice of the profession; however, teachers admit that their occupational status in a community is not high, and remuneration is low (Geske A., 2015; LIZDA, 2016), and their academic freedom and teacher autonomy are under pressure (LIZDA, 2016). Yet teachers report on inequalities and problems and this will be discussed further in the paper.

2. Regional disparities: analysis of the research results

Although there is a common methodology for calculating teacher's workload and remuneration, in reality it leads towards differences and inequalities among Latvian regions, municipalities and even within educational institutions in terms of how teachers are paid for teaching and no-teaching activities. Teachers treat this as a violation of their right to a fair remuneration. Due to global economic and financial crisis in 2008 having severe consequences in Latvian economy, the government introduced new model for financing general education "Money follows the student" (in Latvian – "Nauda seko skolenam") on the 1st of September 2009. That was governmental attempt to save public expenditure for education. In a result, the amount of the teacher's salary now greatly depends on a number of the students in school, which actually leads towards inequality when teachers for the same work in different municipalities receive different salary. Regional differences in teachers' salaries per one pedagogical rate in academic year 2017/2018 are presented in Figure 1.



Source: authors' calculations based on VIIS data, 2017

Fig. 1. The average salary of teachers per one pedagogical rate in general education in the planning regions of Latvia 2017/2018, EUR

¹Corresponding author. Tel.: +371 29265476 E-mail address: Anda.Grinfelde@llu.lv

²Corresponding author. Tel.: +371 26321667 E-mail address: Liga.Paula@llu.lv

³Corresponding author. Tel.: +371 26683551 E-mail address: ilze.prizevoite@lizda.lv

The differences in average teachers' salaries in Latvian planning regions can reach up to 13 %. The highest average salaries teachers receive in Riga region (835.55 EUR), whereas in Kurzeme region – the lowest (740.49 EUR) due to great number of small rural schools with a small number of students. According to the current financing model, the small schools can afford only minimum for implementation of study programmes and lack resources to ensure teachers with adequate remuneration for non-teaching activities: correcting students' works, preparing for the lessons, and individual work with students. In 2016, an average salary in the public sector in Latvia was 885 EUR, but for workers in education - 703 EUR (Central Statistical Bureau, 2017). In academic year 2017/2018, an average salary for the teachers in general education is 772.99 EUR, which is still below the average in the public sector in 2016. In Latvia, there is no appropriate legal regulation on teachers' social guarantees to avoid introducing remuneration systems within educational institutions established by the state and municipalities which imply discriminating salary differences and inequalities. This raises great dissatisfaction among the teachers. Trade union members have reported on cases when, for example, technical staff members of a school received allowance in case of their relative death while teachers did not because officials from the Ministry of Education and Science stated that teachers were not entitled to receive support provided by the Law On Remuneration of Officials and Employees of State and Local Government. To avoid these situations, the solution is collective agreements comprising a norm entitling teachers social guarantees. However, collective bargaining in municipalities is often complicated thought it is a fundamental right of workers. Statistics about collective agreements in Latvian schools is presented in Table 2. Only 54 % of 1161 trade unions in the educational institutions have managed to establish collective agreements.

Table 2

Number of collective agreements in educational institutions in Latvia on 1st of January 2017

Regions	Number of trade unions	Number of collective agreements	Ratio of collective agreements per trade unions in total, %	Respondents' opinion about the statement* "Teachers are always duly introduced with changes in collective agreements", %	
				"Strongly agree"; "slightly agree"	"Strongly disagree"; "slightly disagree"
Riga	213	45	21	60	12
Pieriga	188	147	78	72	8
Vidzeme	206	115	56	70	9
Kurzeme	191	114	60	68	10
Zemgale	154	75	49	74	11
Latgale	209	136	65	80	5
In total	1 161	632	54	Average in Latvia: 71	Average in Latvia: 9

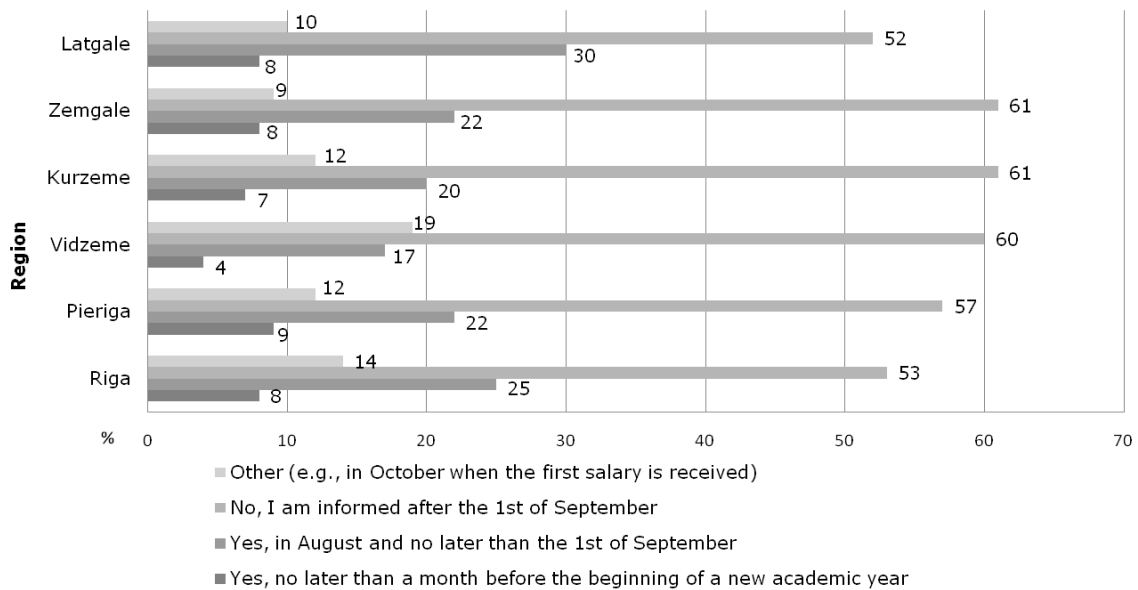
Source: Authors' calculations based LIZDA data and LIZDA survey data*

Approximately two-thirds of the respondents agree that teachers are always duly introduced with changes in the collective agreements (Figure 2).

¹Corresponding author. Tel.: +371 29265476 E-mail address: Anda.Grinfelde@llu.lv

²Corresponding author. Tel.: +371 26321667 E-mail address: Liga.Paula@llu.lv

³Corresponding author. Tel.: +371 26683551 E-mail address: ilze.prizevoite@lizda.lv



Source: Authors' calculations based LIZDA survey data

Fig. 2. Teachers' views on availability of duly information about their salary (%), n=2055

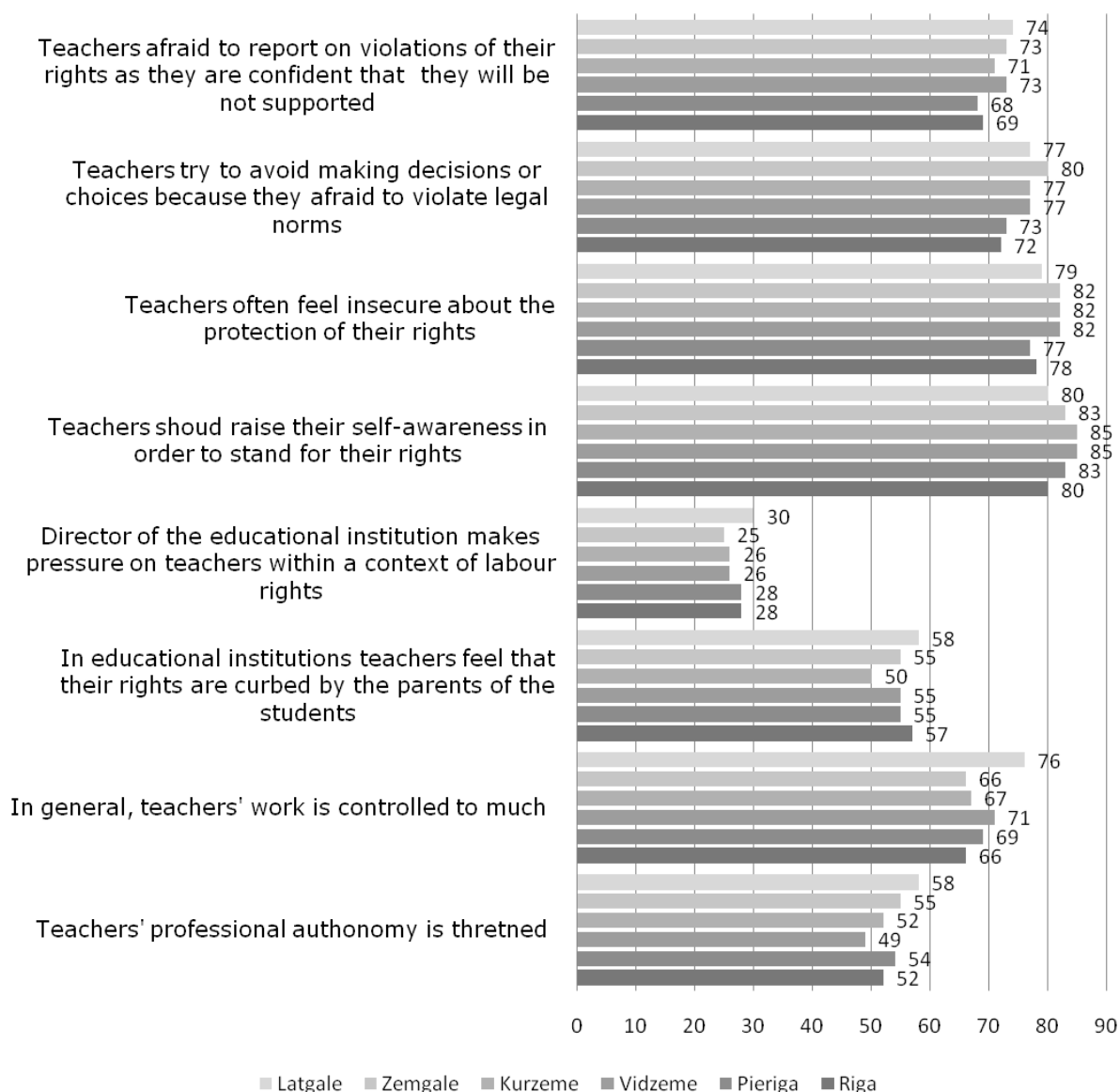
To compare the answers between the regions, teachers in Latgale (80 %) are more positive about this in comparison with their colleagues in Riga (60 %). It should be emphasized also that the number of collective agreements in Riga is the smallest among the regions. Still, almost half of the respondents from Riga and Latgale and around 60 % in other regions learn about the amount of salary after the 1st of September, which is a violation of legal norms. Teachers in Latvia believe that their occupational status is low. Eight teachers of ten believe that occupational status has impact on public attitude towards teachers' rights. There are no significant differences in opinions about this statement among the regions; however, slightly less positive are respondents in Kurzeme (77.2 %) and Latgale (74.6 %). Data in the Figure 3 show that teachers almost do not feel the pressure from the school directors in the context of their rights; only 27 % are positive. 58 % respondents in Latgale, but 49 % in Vidzeme believe that their professional autonomy is under the threat.

In comparison to other regions, teachers in Latgale (58 %) feel more restricted in terms of their rights from the side of parents. In general, problematic fact is that teachers feel too much controlled (69 %) and afraid to report on violations of their rights as do not believe that they will receive support (71 %). This is obvious in case of Latgale region whereas teachers in Zemgale more than in other regions afraid to make decisions or choices in order to avoid breaking rules. Alarming is the fact that approximately 80 % of the respondents admit that they feel insecure in terms of protection their rights. To conclude, teachers in Latgale point greater risks in protection their rights as respondents from other regions, especially Riga and Pierīga. To sum up, during the panel discussion at LIZDA annual conference the following solutions were defined (Table 3).

¹Corresponding author. Tel.: +371 29265476 E-mail address: Anda.Grinfelde@llu.lv

²Corresponding author. Tel.: +371 26321667 E-mail address: Liga.Paula@llu.lv

³Corresponding author. Tel.: +371 26683551 E-mail address: ilze.prizevoite@lizda.lv



Source: Authors' calculations based LIZDA survey data

Fig. 3. Teachers' opinions about the statements (aggregate of choices "strongly agree" and "slightly agree" (%), n=2055)

It should be noted that some proposals seem to be more emotional rather than rational; however, they well reflect teachers' attitudes and needs for particular support in protection their rights.

¹Corresponding author. Tel.: +371 29265476 E-mail address: Anda.Grinfelde@llu.lv

²Corresponding author. Tel.: +371 26321667 E-mail address: Liga.Paula@llu.lv

³Corresponding author. Tel.: +371 26683551 E-mail address: ilze.prizevoite@lizda.lv

Table 3

How to improve protection of teachers' labour rights: proposals of the LIZDA panel discussion

Education institution	Municipality	The State
More teachers should join the trade unions as more powerful unions can attain compliance with the teachers' labour rights in educational institutions	To draw more attention of a society and local community on protection of teachers' rights	To state by the rules of the Cabinet of Ministers that tariffication of teachers should be conformed with a trade union mandatory and both pedagogical rates and salaries should be transparent for all teachers in school
Seminars on protection of labour rights should be organized for teachers to be educated how to proceed in cases of violation of their rights	To ensure adoption of remuneration schedule and its consistent implementation	Controlling bodies should be more opened to consultations and support instead of punishing
To ensure teachers with opportunities to receive consultations of a lawyer who is competent in specificity of a teaching profession	Duly introduce teachers with respective legal norms and their changes	Specific instrument should be developed to punish students and/or their parents in order to protect teachers from false accuses
To investigate each conflict and dispute from all sides, organizing independent committee of specialists if necessary	To publish on the websites of municipalities principles of distribution workloads and earmarked subsidies	To control that mass media provide only secure and true information thus avoid cases of touching teacher's dignity
To avoid teachers' overwork in order to respect their rights on privacy and rest	To ensure equal attitude towards teachers of all schools especially in cities with many schools	To stop abusing education system, competences and teachers and level of student knowledge

Source: panel discussion in annual LIZDA conference, November 22, 2017

Conclusions

- 1) Neo-liberal policies and economic crises force the governments across the Europe including Latvia to adopt decisions which negatively affect income and social security of workers in the public sector. Cuts in public expenditure and jobs in education have impact also on the quality of teaching.
- 2) Collective bargaining practices in Latvia vary among municipalities and a number of the collective agreements in educational institutions is not high. Data show that the teachers' right to receive equal pay for the same job is violated even within boundaries of the same municipality. In the survey, problem with duly information on pedagogical rate and salary is the most frequently reported violation of teachers' rights. Other problems reported by teachers are lack of support from the administration and municipalities in protection of teacher's rights, insecurity about their rights and fear to make wrong decisions which later will be translated as exceeding teacher's authority. This is due to lack of self-confidence and knowledge about teachers' rights as well as often observed pressure from, for example, parents of the students.
- 3) Based on the research results solutions for improvements in protection of teachers' rights were formulated to be implemented by the education institutions, municipalities and the State.

Bibliography

1. Achinstein, B., Ogawa, R. T., Speiglman, A. (2004). Are We Creating Separate and Unequal Tracks of Teachers? The Effects of State Policy, Local Conditions, and Teacher Characteristics on New Teacher Socialization. *American Educational Research Journal*, Volume 41, Issue 3, pp. 557-603.
2. Alston, P. (2005). *Labour Rights as Human Rights*. Oxford: Oxford University Press, p. 253.

¹Corresponding author. Tel.: +371 29265476 E-mail address: Anda.Grinfelde@llu.lv

²Corresponding author. Tel.: +371 26321667 E-mail address: Liga.Paula@llu.lv

³Corresponding author. Tel.: +371 26683551 E-mail address: ilze.prizevoite@lizda.lv

3. Arrigo, G., Casele, G. (Eds.) (2005). *Glossary on Labour Law and Industrial Relations*. Geneva: International Labour Office, p. 278. Retrieved: http://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---lab_admin/documents/publication/wcms_113920.pdf Access: 30.01.2018.
4. Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., Hanson, W. E. (2003). Advanced Mixed Methods Research Designs. In A. Tashakkori, C. Teddlie (Eds.) *"Handbook of Mixed Methods in Social and Behavioral Research"*, Thousand Oaks, CA: Sage. pp. 209-240.
5. Council of Europe (1996). *European Social Charter (Revised)*. Retrieved: <https://rm.coe.int/168007cf93> Access: 04.02.2018.
6. Central Statistical Bureau. Retrieved: <http://www.csb.gov.lv/en/dati/data-23959.html> Access: 05.02.2018.
7. Darba likums (*Labour Law*). Retrieved: <https://likumi.lv/doc.php?id=26019> Access: 30.01.2018.
8. Geske, A. (Ed.) (2015). *Skolotaji Latvija un pasaule (Teachers in Latvia and Around the World)*. Riga: LU PPMF Izglitības pētniecības institūts, p. 293. Retrieved: <http://sf.viaa.gov.lv/library/files/original/SkolotajiLatvijaUnPasaule.pdf> Access: 30.01.2018.
9. ETUCE (2017). Pay in the Public Services – How Workers Continue to Pay for the Crisis. Briefing paper. Retrieved: https://www.csee-etu.org/images/CALLS/EPSU-ETUCE_Briefing_Pay_in_the_Public_Sector.pdf Access: 04.02.2018.
10. Gross, A. J. (2006). *Workers' Rights as Human Rights*. Ithaca: Cornell University Press, p. 272.
11. Hendrickx, F., Marx, A., Rayp, G., Wouters, J. (2016). The Architecture of Global Labour Governance. *International Labour Review*, Volume 155, Issue 3, pp. 339-356.
12. Hill, D. (2005). Globalisation and Its Educational Discontents: Neoliberalisation and its Impacts on Education Workers' Rights, Pay and Conditions. *International Studies in Sociology of Education*, Volume 15, Issue 3, pp. 257-288.
13. ILO (2003). *Fundamental Rights at Work and International Labour Standards*. Geneva: ILO, p. 140. Retrieved: http://www.ilo.org/wcmsp5/groups/public/@ed_norm/@normes/documents/publication/wcms_087424.pdf Access: 30.01.2018.
14. Izglītības likums (*Education Law*). Retrieved: <https://likumi.lv/doc.php?id=50759> Access: 04.02.2018.
15. Latvian Trade Union of Education and Science Employees (2017). Unpublished statistics and annual reports.
16. LIZDA (2016). Skolotāja profesijas prestižs Latvija: Pārskats par LIZDA interneta aptaujas rezultātiem (*Occupational Prestige of the Teaching Profession in Latvia: Overview of LIZDA on-line survey*). Retrieved: http://www.lizda.lv/content/files/LIZDA_aptauja-publikacija-15-11-2016.pdf Access: 04.02.2018.
17. Mantouvalou, V. (2012). Are Labour Rights Human Rights? *European Labour Law Journal*, Volume 3, Issue 2, pp. 151-172.
18. Nacionālās tripartitās sadarbības padomes Sociālās drošības apakšpadomes (SDA) sanāksmes protokols Nr.5, 2017. gada 18. oktobri (*Minutes No 5 of the National Tripartite Cooperation Council, Social Security Subcouncil, 18th October, 2017*). Retrieved: http://www.lm.gov.lv/upload/protokols/prot_nr5_181017.pdf Access: 05.02.2018.
19. National Labour Law Profile: Latvia. Retrieved: http://www.ilo.org/ifpdial/information-resources/national-labour-law-profiles/WCMS_158912/lang--en/index.htm Access: 23.01.2018.
20. OECD (2017). *Education at a Glance 2017: OECD Indicators*. Paris: OECD Publishing, p. 453.
21. The Treaty of Rome (1957). Retrieved: https://ec.europa.eu/romania/sites/romania/files/tratatul_de_la_roma.pdf Access: 30.01.2018.
22. UNESCO (2017). Joint Message on the Occasion of World Teachers' Day 2017: Teaching in Freedom, Empowering Teachers. Retrieved: <http://unesdoc.unesco.org/images/0025/002592/259268e.pdf> Access: 23.01.2018.
23. United Nations General Assembly (1948). Universal Declaration of Human Rights. Retrieved: <http://www.un.org/en/universal-declaration-human-rights/> Access: 30.01.2018.
24. Valsts izglītības informācijas sistēma (VIIS) (*The State Education Information System*). Retrieved: <https://www.viis.lv> Access: 04.02.2018.
25. Vaughan-Whitehead, D., Vazquez-Alvarez, R., Maitre, N. (2016). Is the World of Work Behind Middle-Class Erosion? In D. Vaughan-Whitehead (Ed.) *"Europe's Disappearing Middle Class? Evidence from the world of work"*. Geneva, Cheltenham: International Labour Office, Edward Elgar. pp. 1-61.
26. Vispārējās izglītības likums (*General Education Law*). Retrieved: <https://likumi.lv/doc.php?id=20243> Access: 04.02.2018.

¹Corresponding author. Tel.: +371 29265476 E-mail address: Anda.Grinfelde@llu.lv

²Corresponding author. Tel.: +371 26321667 E-mail address: Liga.Paula@llu.lv

³Corresponding author. Tel.: +371 26683551 E-mail address: ilze.prizevoite@lizda.lv

MATHEMATICAL MODELS OF INTERFERENCE BETWEEN THE LEVELS OF ENVIRONMENTAL CONTAMINATION AND REGIONAL INDUSTRIAL GROWTH

Angelina Ilchenko¹, Dr. Sc. (Econ.), Prof.; Luo Juan², Cand. Sc. (Econ.) and
Alexander Krovyakov³, Cand. Sc. (Econ.)

¹ Honoured Science Worker of the Russian Federation, Director of the Center for Innovative and Anti-Crisis Technologies of Ivanovo State University of Chemistry and Technology, ² Luo Juan, Teacher of the Mathematics and Computer Science College of Wuhan Textile University, Wuhan City, Hubei Province, China, ³ Ivanovo State University of Chemistry and Technology,

Abstract. In article the theoretical substantiation of a complex of models of the coordinated regional development is resulted, from a position of an ecological condition and economic growth, on purpose to show possibilities of use for the quantitative analysis and forecasting (allocation of tendencies of regional development of preservation of the environment - for recommendations about regional government).

For the first time the modified model "Ecological curve of the Smith" - for the interrelation analysis between environmental contamination and per capita population incomes (taking into account an inequality in incomes) is formulated. The structured model of vector autoregression for reflection of dynamic character of interrelation between ecological pollution and well-being of the population is offered. The model of decomposition of effect from emissions of a waste is structurally expanded at the expense of demographic factor. The offered models unite in a uniform complex of the analysis and forecasting, through system of estimated relative indexes, for the description of degree of synchronization of economic and ecological development of territory.

Key words: sustainable economic development, ecological curve, model for decomposition of the environmental contamination, VAR model of dynamic coordination.

JEL code: O44

Introduction

Since entering the era of industrial society, humanity has succeeded in economic development. In conditions of the economic globalization, an adequate increase in resource costs and the release of waste into the planet's environment are caused by industrial expansion and urbanization. Since the 1960s, environmental degradation connected with economic development has attracted a lot of attention from scientists around the world. For example, in 1962, Rachel Carson, in his work "Silent Spring", discussed the growing dangers of pesticides and chemicals such as DDT. In 1972, a group of economists - members of the Club of Rome published a report "Limits of Growth". The report said that population growth, investment, food production lead to depletion of resources and pollution of the environment - this is an exponential growth. It also was stressed, that with such trend, economic growth will reach its limit in 100 years. In 1972, the first United Nations Conference on the Human Environment was held. It proposed the slogan "Only One Earth", and this was the first milestone in understanding the history of human sustainable development. In 1987, the theme of the global environment was presented in the report of the United Nations World Commission on Environment and Development (WCED) "Our Common Future" at the UN General Assembly, which proposed the formulated concept of sustainable development. In 1992, The World Bank published a World Development Report on "Development and the Environment", and the corresponding "Local Agenda 21" was adopted in the same year. In 2009, the world countries signed a new agreement about urgent measures, in connection with the future climate change, at the Conference on Global Warming convened under the auspices of the UN in Copenhagen. In 2015, the United Nations Climate Change Conference in Paris adopted the version of the Paris Agreement to reduce carbon dioxide emissions until 2030.

Although China is at the stage of rapid growth of its economy, since the period of reforms and openness, yet traditional development models: "high costs, high consumption, high pollution, while

¹Corresponding author. E-mail address: econom@isuct.ru

²Corresponding author. E-mail address: luojuan801128@163.com

³Corresponding author. E-mail address: krovyakov12@gmail.com

low quality, low efficiency, low output", or: "pollution first, recovery later"; "first destruction, then reconstruction" - they are still dominant. The list of the main environmental contamination sources in China is well known - air pollution, water pollution, solid waste incineration, soil contamination, soil erosion, and so on. The relative lack of resources, the vulnerability of the ecological environment, the insufficient capacity of the environmental recovery industry - are becoming an important factor limiting China's sustainable economic development (Yanging X., 2010). Hubei Province is the most important industrial region in Central China, located in the basin of the Yangtze River. Along with the full implementation of the China general strategy for Hubei as a central industrial area, Hubei has unique opportunities for accelerated development. However, the rapid growth rate depends on a large number of factors, the combined effect of which affects the production of thermal energy and the industries with intensive pollution.

The aim of the present research is to describe relations between socio-economic factors and the environmental contamination at the country level on the basis of economic and mathematical modelling and propose methods and algorithms for an empirical justification of relevant government policies for environmental protection of highly industrialized regions.

The main tasks of the research are to define effects of regional per capita income gap on different types of environmental pollution; to establish the long-term dynamic effect between GRP and environmental contamination factors; to prove the necessity of including demographic effect as a source of environmental contamination factor together with scale, structural and technological effects.

The object of research is the state of economy and the level of environmental contamination in the industrialized region of China - Hubei Province.

Research results and discussion

1. A modified Environmental Kuznets Curve (EKC) model for analysing the relationship between per capita incomes and environmental pollution, taking into account income inequality

The EKC model shows (Fig. 1) that if the average per capita income is low, then the degree of environmental pollution is lower. With increasing per capita income, environmental pollution becomes serious. Environmental degradation is complicated by economic growth. When economic development reaches a certain level, that is, a critical point, or "inflection point", with subsequent increase in average per capita income, environmental pollution again becomes lower, the quality of the environment gradually improves. This situation can be described with an inverted U-shaped curve to describe the relationship between pollution and income. The EKC model was put forward by Grossman as a quadratic function. Looking at the opinions of domestic and foreign scientists, we found that there is no need for an inverted U-curve to describe the relationship between pollution and income in some regions and countries (Yanging X., 2010). Thus, there is no urgent need to use a quadratic function to reflect the relationship between pollution and income levels. The authors first used a cubic curve in the form of a logarithm to describe the relationship between average per capita income "x" and environmental pollution "y" for formula (1).

$$\ln y = \beta_0 + \beta_1 \ln x + \beta_2 (\ln x)^2 + \beta_3 (\ln x)^3 + \varepsilon \quad (1).$$

Where:

$\beta_0, \beta_1, \beta_2, \beta_3$ - estimated parameters. The following options are possible:

¹Corresponding author. E-mail address: econom@isuct.ru

²Corresponding author. E-mail address: luojuan801128@163.com

³Corresponding author. E-mail address: krovayakov12@gmail.com

- (I) $\beta_1 > 0 (\beta_1 < 0), \beta_2 = \beta_3 = 0$, $\ln x$ и $\ln y$ – linear relationship;
 (II) $\beta_3 = 0, \beta_2 < 0$, $\ln x$ и $\ln y$ – inverted U-shaped relationship;
 (III) $\beta_3 = 0, \beta_2 > 0$, $\ln x$ и $\ln y$ – U-shaped relationship;
 (IV) $\beta_3 > 0, \beta_2^2 - 3\beta_1\beta_3 > 0$, $\ln x$ и $\ln y$ – N-shaped relationship;
 $\beta_3 > 0, \beta_2^2 - 3\beta_1\beta_3 < 0$, $\ln x$ и $\ln y$ – ascending function;
 (V) $\beta_3 < 0, \beta_2^2 - 3\beta_1\beta_3 > 0$, the relationship of $\ln x$ and $\ln y$ is opposite to the N-shaped;
 $\beta_3 < 0, \beta_2^2 - 3\beta_1\beta_3 < 0$, $\ln x$ and $\ln y$ is a decreasing function;
 (VI) $\beta_1 = \beta_2 = \beta_3 = 0$, no relationship between $\ln x$ and $\ln y$.

The authors used formula (1) and official China statistics over 15 years to analyse the relationship between the level of environmental contamination and average per capita income in Hubei Province. The authors researched whether there was a relationship between few indicators (PGRP- gross regional product (GRP) per capita, WWP-emission of industrial wastewater, WGP-emission of industrial exhaust gas, SWP-emission of industrial solid waste) as an inverted U-shaped curve.

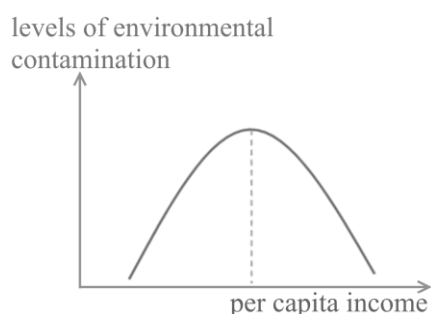


Fig. 1. The theoretical relationship between income and environmental contamination in Environmental Kuznets Curve model

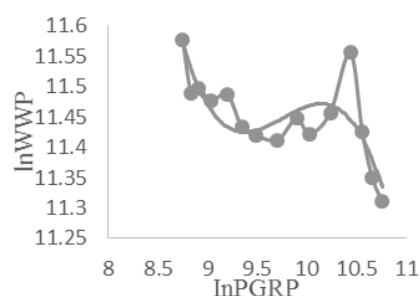


Fig. 2. The identified relationship between GRP per capita and emission of industrial wastewater in Hubei Province in 2000-2014

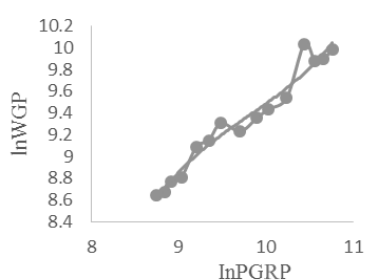


Fig. 3. The identified relationship between GRP per capita and emission of industrial exhaust gas in Hubei Province in 2000-2014

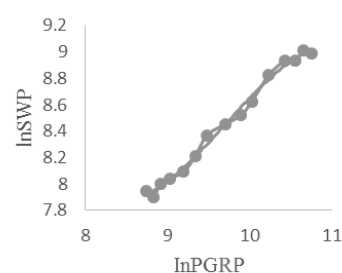


Fig. 4. The identified relationship between GRP per capita and emission of industrial solid waste in Hubei Province in 2000-2014

Source: authors' calculations based on China official statistics

For Fig. 2, it can be seen that in Hubei province, the relationship of the inverted N-curve exists between GRP per capita and industrial wastewater. That is, with an increase in per capita GRP, the release of wastewater first decreases, then increases and decreases again. For Fig. 3 and Fig. 4, we can see that the emission of industrial exhaust gas and solid waste has a constant increase with GRP per capita. The classical relationship of the inverted U-curve between the economy and the environment in Hubei province has not been established.

¹Corresponding author. E-mail address: econom@isuct.ru
²Corresponding author. E-mail address: luojuan801128@163.com
³Corresponding author. E-mail address: krovnyakov12@gmail.com

The authors first used a cubic curve in the form of a logarithm to describe the relationship between average per capita income X and environmental contamination Y in the form of formula (1). Among the six variants of the relations between X and Y there is an EKC model, as a special case.

In recent years, the problem of income inequality has been increasing in many regions of China. Therefore, the authors took into account the income inequality in the model (the Gini coefficient). The authors built the following model, using variables such as income, income gap and environmental contamination levels:

$$\ln y = a + b \ln x + c (\ln x)^2 + d (\ln x)^3 + e * \text{GINI} + f * (\text{GINI} * \ln x) + \varepsilon \quad (2).$$

Where:

a, b, c, d, e, f - estimated parameters;

GINI - the Gini coefficient;

GINI* $\ln x$ - interaction effect (the econometric concept put forward by J.M. Wooldridge (Yang X., 2010).

The authors used the formula (2) and the statistical data of Hubei Province to obtain the relationship between $\ln \text{PGRP}$, GINI and $\ln \text{WWP}$, $\ln \text{WGP}$, $\ln \text{SWP}$ and then computed the partial derivatives and thus got the following formula (Juan L., 2013):

$$\frac{\partial \ln \text{WWP}}{\partial \text{GINI}} = 7.51 - 0.88 * \ln \text{PGRP} \quad (3),$$

$$\frac{\partial \ln \text{WGP}}{\partial \text{GINI}} = -39.24 + 4.16 * \ln \text{PGRP} \quad (4),$$

$$\frac{\partial \ln \text{SWP}}{\partial \text{GINI}} = 19.00 - 1.99 * \ln \text{PGRP} \quad (5).$$

It can be seen that an increase in income inequality can reduce water pollution; the growth in the income gap can increase air pollution. And the higher the income gap, the greater the impact of this factor. Increasing income inequality can also reduce the release of solid waste.

Summarizing the foregoing, it can be noted that the income gap has different effects on different types of pollution, the overall result of this influence is not defined. Sometimes the government can reduce income inequality through economic policies, for example, aimed at producing products that increase total resources. The government can also promote the development of enterprises in small towns to narrow the gap between urban and rural areas. But such a policy will inevitably lead to new pollution of the environment, so the government must strictly control the impact of income inequality on all types of pollution. Thus, state interventions can contribute to sustainable economic development.

2. Including in the VAR-model of the current values of endogenous variables

It is proposed to include in the VAR model the current values of endogenous variables to analyse the relationship between average per capita incomes and environmental contamination using the newly obtained and structured SVAR model.

The principle of the vector autoregression (VAR) model is to use each internal variable as a function of all internal lagging variables. The model can be used to predict time series and analyse dynamic effects of random noise on the system (Aivazyan S.A., 2010).

A mathematical representation of the model VAR (p):

¹Corresponding author. E-mail address: econom@isuct.ru

²Corresponding author. E-mail address: luojuan801128@163.com

³Corresponding author. E-mail address: krovyakov12@gmail.com

$$Y_t = \Phi_1 Y_{t-1} + \dots + \Phi_p Y_{t-p} + \varepsilon_t \quad t = 1, 2, \dots, T \quad (6).$$

Where:

Y_t : a column vector k of measurable endogenous variables;

p : lagged order;

T : sample size;

Φ_1, \dots, Φ_p : - matrix of estimated coefficients ($k \times k$ matrix);

ε_t : random disturbance, column vector of k measured variables.

The authors research a modified structural model VAR (SVAR) containing explicitly the current values of endogenous variables (Juan L., Ilchenko A. N., 2013).

The dynamic effect is of interest when the noise changes or the model is subjected to a certain influence.

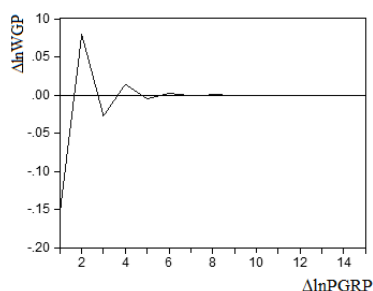
Method applied is called Impulse Response Function (IRF). The authors have given an example of the results on the official statistics of Hubei Province (2000-2014). The VAR and SVAR models require that the variables of the time series to be stable. But GRP per capita data and data about environmental contamination are not stable, but their first-order differences are stable. Therefore, as a result, the authors constructed a model for industrial exhaust gas emission and per capita GRP as a model of SVAR (1) based on the first-order difference calculation data. Similarly, the authors made the SVAR model for emission of industrial wastewater, emission of industrial solid waste and their dependence on per capita GRP (Juan L., Ilchenko A. N., 2013).

$$\begin{pmatrix} \Delta \ln WGP \\ \Delta \ln PGRP \end{pmatrix} = \begin{pmatrix} -21.55 \Delta \ln PGRP \\ 6.47 \Delta \ln WGP \end{pmatrix} + \begin{pmatrix} -1.398 & 11.268 \\ 3.004 & -6.202 \end{pmatrix} \begin{pmatrix} \Delta \ln WGP(-1) \\ \Delta \ln PGRP(-1) \end{pmatrix} + \begin{pmatrix} 1.760 \\ 0.127 \end{pmatrix} + \begin{pmatrix} u_{11} \\ u_{21} \end{pmatrix} \quad (7).$$

Where:

$\Delta \ln WGP$ и $\Delta \ln PGRP$ - first-order differences.

Formula (7) shows relationship between $\Delta \ln WGP$, $\Delta \ln PGRP$, $\Delta \ln WGP(-1)$ и $\Delta \ln PGRP(-1)$. The authors introduced the functions of the impulse response and the decomposition of the variance (Fig. 5 - 7).



Source: authors' calculations based on China official statistics

Fig. 5. The identified impulse of the exhaust gas emission function from per capita GRP in Hubei Province in 2000-2014

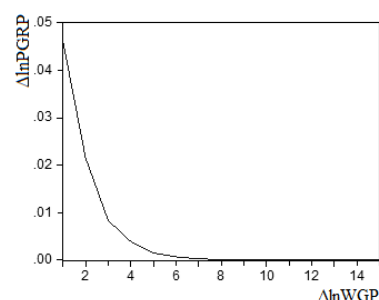


Fig. 6. The identified impulse of per capita GRP function from the exhaust gas emission level in Hubei Province in 2000-2014

In Figure 5, it is seen that with increasing economic growth, emissions into the atmosphere are rapidly gaining volumes, and then become smaller, after that more and less again, and ultimately stabilize. The increase in average per capita income will lead to fluctuations in air pollution and

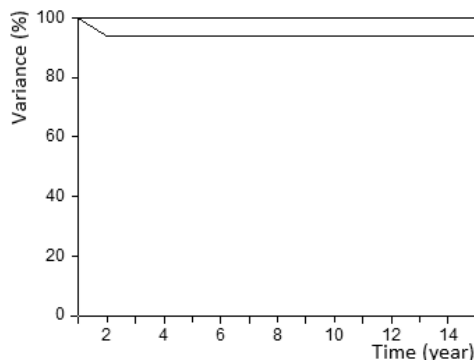
¹Corresponding author. E-mail address: econom@isuct.ru

²Corresponding author. E-mail address: luojuan801128@163.com

³Corresponding author. E-mail address: krovayakov12@gmail.com

stabilize after the seventh period, which reflects the negative impact of per capita income on air pollution.

In Fig. 6, it is seen that with the increase in emissions to the atmosphere, economic growth is rapidly declining, and ultimately stabilizing. This shows that air pollution slows down economic development.



Source: authors' calculations based on China official statistics

Fig. 7. **Calculated variance of the percentage of industrial exhaust gas emissions growth in relation to the growth of per capita GRP (Response variance curve, RVC) for Hubei Province in 2000-2014**

In Fig. 7, the horizontal axis is time, the vertical axis is the degree of the relative contribution of the variance (%). It is seen that the variance of the percentage of growth in industrial exhaust gas emissions, in relation to the growth of per capita GRP, is stable around 90 % after the second period. This shows that economic growth has a huge impact on increasing air pollution. This reflects that the current state of economic growth in Hubei strongly depends on the investment climate, lack of technology, high energy consumption and environmental contamination. This does not lead to sustainable economic development. It is necessary to change the situation of economic growth, increase production efficiency and optimize the utilization of waste.

The new modified model SVAR allows to establish dependence of value of a variable from its own lags and lags of other variables. This allows one to make a structure that can cover more characteristics of the variable. The impulse response function can describe the effect of the system in case of noise changes, and analysis of the variance decomposition describes the degree of contribution of a particular burst. Thus, the model reflects the long-term dynamic effect between economic and environmental variables.

3. Including of demographic factors in the decomposition model of the overall environmental contamination

Grossman and Krueger (Juan L., Ilchenko A. N., 2014) note that economic growth can affect environmental contamination through three channels: the effect of scale, the structural effect and the technological effect. They formed the dynamic equations for the decomposition process of the influence factor of the waste produced. For China, the population reproduction is very important for social development. The large population of China affects the environment and economic development. Therefore, the authors added a demographic factor to the model (Figure 8).

¹Corresponding author. E-mail address: econom@isuct.ru

²Corresponding author. E-mail address: luojuan801128@163.com

³Corresponding author. E-mail address: krovayakov12@gmail.com

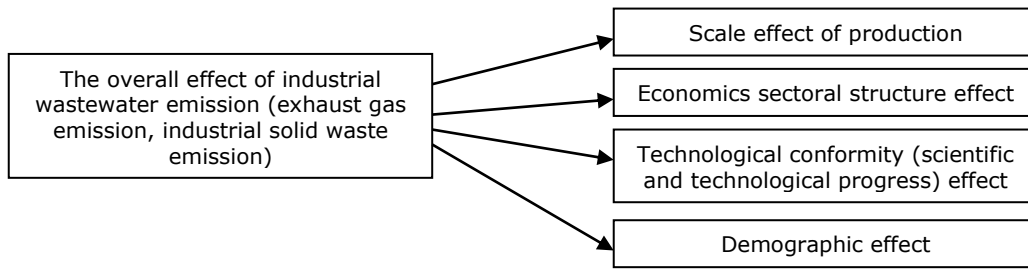


Fig. 8. **Supposed by the authors scheme of decomposition of the environmental factor into sources of influence (economic reasons)**

To analyse the decomposition of the environmental pollution factor into the influencing factors, the authors use the following model (suggested by the authors):

$$E_t = \frac{Y_t}{P_t} P_t \sum_{j=1}^3 \frac{E_{jt}}{Y_{jt}} \frac{Y_{jt}}{Y_t} \quad (8).$$

Where:

t- observation period, years, $t=1, \dots, 15$;

j- structural groups of industries (spheres of activity) in terms of the degree of influence on pollution: agricultural, industrial, transport and services; $j=1, 2, 3$.

E_t - waste emissions for the period t;

Y_t - GDP;

P_t - population;

E_{jt} - the waste emissions of the industry j for the period t.

Y_{jt} - industry's contribution to GDP j for the period t.

$\frac{E_{jt}}{Y_{jt}}$ - intensity of industrial pollution for industry j for the period t, marked as I_{jt} .

$\frac{Y_{jt}}{Y_t}$ - share of industry j in GDP, marked as S_{jt} .

$\frac{Y_t}{P_t}$ used to reflect the per capita income $\frac{Y_t}{P_t}$.

The authors have carried out the necessary mathematical transformations to reveal the structure of the model (eJuan L., Ilchenko A. N., 2014). Thus, the level of pollution is determined by four economic factors that can be reflected as: $E_T - E_{T_0} = \Delta E_1 + \Delta E_2 + \Delta E_3 + \Delta E_4$. In the right side of the equation: the scale effect, the demographic effect, the structural effect and the technical effect. To calculate the integral, the authors use the Logarithmic Mean Division Index (LMDI) method. The logarithmic mean function is used as a weight.

Table 1 shows the results of the decomposition, using the example of contamination with industrial exhaust gas emission. Similarly, decomposition of the total pollution factor for industrial wastewater emission and industrial solid waste emission is calculated (Juan L., Ilchenko A. N., 2014).

¹Corresponding author. E-mail address: econom@isuct.ru

²Corresponding author. E-mail address: luojuan801128@163.com

³Corresponding author. E-mail address: krovayakov12@gmail.com

Table 1

**The authors' results of the decomposition of the general contamination factor,
 in terms of industrial exhaust gas emission in Hubei Province in 2000-2014
 (Units: 100 million cubic meters)**

Year	Scale effect (ΔE_1)	Demographic effect (ΔE_2)	Structural effect (ΔE_3)	Technological effect (ΔE_4)	Increase in total $E_T - E_{T_0}$
2001	513.47	5.51	4.15	-377.15	145.98
2002	481.08	22.17	2.45	114.34	620.05
2003	774.49	24.47	84.79	-616.80	266.96
2004	1304.04	1.03	14.99	810.93	2130.99
2005	1456.88	-26.17	449.91	-1314.58	566.04
2006	1384.06	91.86	209.14	-74.03	1611.03
2007	2073.88	81.57	51.22	-3008.74	-802.07
2008	2797.02	-689.47	113.47	-875.95	1345.07
2009	1599.68	18.95	455.63	-1109.27	964.99
2010	2731.62	18.42	569.74	-1977.78	1342.01
2011	3620.85	93.92	494.09	4765.52	8974.38
2012	2567.99	76.91	128.92	-6101.06	-3327.23
2013	1968.45	68.20	-382.20	-1180.60	473.85
2014	2111.00	60.98	-1038.08	582.15	1716.05

In work (Juan L., Ilchenko A. N., 2014), the hypothesis of the possibility of decomposition of the general polluting effect into economic system-forming factors - the scale effect of production, economics sectoral structure effect and technological conformity (scientific and technological progress) effect - is analysed. For the conditions of China, where the population is very large, the authors added demographic factors to the Grossman-Kruger model. The model for decomposition of environmental contamination thus included 4 economic factors: scale effect, demographic effect, structural effect and technological effect. Thus, the authors modified the Grossman-Krueger model and experimentally confirmed the validity of the set hypothesis.

Conclusions

The constructed complex of mathematical models, including a system of integrated appraisal indices, reflects the realities and opportunities for a balanced development of highly industrial territories, both from the standpoint of economic growth and ecology. The theoretical methodology for analysing the problem of the relationship between the economic indicators of the development of the territory and the factors of environmental protection, based on the modern apparatus of applied econometrics, also has promising practical application. The proposed methods, algorithms, methods provide an empirical justification for the formulation and implementation of relevant policies: sustainable economic development and environmental protection in the industrialized regions of different countries.

Acknowledgments

The article is prepared on the basis of the materials of the scientific project "Design of mathematical models for assessing the impact of the innovation infrastructure development scale on the upgrade of non-primary sectors of the Russian economy" (grant of the Russian Science Foundation 2018).

Bibliography

1. Aivazyan, S.A. Methods of Econometrics. M.: Magistr, 2010.
2. HDR – Human Development Report. United Nations Development Program. N.Y., 2000, 2001, 2002, 2003. (www.undp.org).

¹Corresponding author. E-mail address: econom@isuct.ru

²Corresponding author. E-mail address: luojuan801128@163.com

³Corresponding author. E-mail address: krovlyakov12@gmail.com

3. Ilchenko, A.N. Economic and Mathematical Methods. – M.: Finansi i Statistika. – 2006.
4. Ilchenko, A.N., Ma Jun. Integral Assessment of the Level of Socio-economic Infrastructure Development in the Region // *Sovremennye Naukoemkie Tehnologii. Regionalnoe Prilozhenie*, 2014, No 4, pp. P37-42.
5. Luo Juan, Angelina N. Ilchenko. Dynamic Analysis of Coupling Relationship between Economic Development and Ecological Environment of Hubei Province. // *International Journal of Business, Humanities and Technology, USA*, Vol. 5, No. 2. 2015.
6. Luo Juan, Angelina N. Ilchenko. The Research on the Relationship between Economic Development and Environment Pollution in Hubei Province Based on Gray Model. // *Sovremennye Naukoemkie Tehnologii. Regionalnoe Prilozhenie*, 2014, No 3, pp. 68-72.
7. Luo Juan, Ilchenko A.N, Empirical Research on Economic Growth and Environmental Pollution in Hubei Province Based on VAR Model. // *Ekonomika i banki*, Belarus, 2013, No 1, pp. 27-30.
8. Luo Juan, Ilchenko A.N. Research on Coordinated Development of Economic Growth and Ecological Environment in Hubei Province. <http://vestnik-es.vlsu.ru/>. (Electronic journal, No 1, 2014).
9. Luo Juan. The Research of Hubei Province (China) Economic Growth Influence on Environment Quality. // *Sovremennye Naukoemkie Tehnologii. Regionalnoe Prilozhenie*, 2013, No 1, pp. 37-42.
10. Report of the Commission on Economic Results and Social Progress // *Voprosi Statistiki*. 2010. № 11-12; 2011. № 2-3. (www.stiglitz-sen-fitoussi.fr).
11. Xia Yangling. A Quantitative Analysis on China's Environment and Economic Growth. PhD dissertation. Dongbei University of Finance and Economics, 2010.

¹Corresponding author. E-mail address: econom@isuct.ru

²Corresponding author. E-mail address: luojuan801128@163.com

³Corresponding author. E-mail address: krovyakov12@gmail.com

EVALUATION OF STATE OF CULTURAL AND HISTORICAL OBJECTS IN JEKABPILS CITY IN CONTEXT OF SUSTAINABLE DEVELOPMENT

Anda Jankava¹, Dr.oec.; **Aina Palabinska**², Mg.oec., **Sintija Pastare**³, Mg.sc.ing.

^{1, 2, 3} Department of Land Management and Geodesy, Faculty of Environment and Civil Engineering, Latvia University of Life Sciences and Technologies

Abstract. Cultural and historical objects are an important part of our history bringing different evidence about the history of the nation. Dealing with the problems of sustainable development of the territories, it is essential to ensure sustainability of these objects to be able to evaluate them also in the future. In the Republic of Latvia, the aims and priorities of long-term sustainability are included in the Strategy of Spatial Development, where one of the three main objectives is defined – to ensure maintenance of Latvian originality, which includes various nature, cultural heritage and unique landscapes. Jekabpils is one of the cities of the Republic of Latvia, where there is a wide range of cultural and historical objects; they are mainly living houses and buildings of social significance having historical importance. Nevertheless, their condition is very different. The aim of the present article is to evaluate the condition and importance of the cultural and historical objects for promoting sustainable development of the territory of Jekabpils city. Within the range of the research, tracing and visual evaluation of the physical condition of the cultural and historical objects has been carried out according to the criteria suggested by the authors. Identity of the cultural and historical objects has also been determined. It has been stated that in general the condition of the cultural and historical objects is satisfactory and even good; still for about one fourth of these objects the physical condition is not satisfactory what often creates an impression of a degraded territory. Most part of these are living houses that are the property of physical persons.

Key words: cultural heritage, cultural and historical objects, sustainable development, land degradation.

JEL code: Q56; Q01; P25

Introduction

Cultural and historical objects are an important part of our history bringing different evidences about the rich history of the nation. Due to this, it is necessary to ensure sustainable development of these objects to be able to evaluate them proudly also in the future. Speaking about development of the territories, this aspect is one of the most important elements, which should be taken into consideration thinking about long-term planning. Sustainable development envisages that for the present and future generations qualitative environment and balanced economic development should be ensured. Observing of the principle of sustainability is the base for rational usage of natural, human and also material resources, maintenance and development of the natural and cultural heritage. The concept of sustainable development has been defined in the UN Global Commission on Environment and Development report "Our Common Future" (also known as the Brundtland Commission Report, 1987) and is widely used internationally since 1992 at the UN **Environment and Development** Conference in Rio de Janeiro. Sustainable development is described as "*a development that meets the needs of today without compromising the needs of future generations.*" (Ilgtspējīga attīstība, s.a.). In 2002, celebrating the decade of the Rio de Janeiro conference a UN conference on sustainable development was held in Johannesburg, the Republic of South Africa, that is called „Rio+10”. In this conference, the conception of sustainable development was developed, which determined that sustainable development is implemented in three mutually related dimensions: in the sphere of environment, economics and the social aspect (Drexhage, 2010).

Also in the Republic of Latvia since regaining of the independence (in 1990) much has been done in the development of the strategy of sustainable development. Involvement in implementation of sustainable development was a factor that was necessary for the Republic of

Latvia to join the European Union that officially took place in 2004. In the above mentioned conference of Rio de Janeiro, Latvia participated with a report "Latvian National Report RIO+10", which characterises the environment, social and economic situation in the country. Within the conference „Rio+10“, based on the principles accepted in the Rio de Janeiro Declaration, also the "Sustainable Development Basic Statements of Latvia" (Latvijas Nacionālais ziņojums..., 2012) have been developed. In turn, thinking about the future, the UN in 2015 adopted a new international programme "Transforming our World: the 2030 Agenda for Sustainable Development" or the so called Agenda 2030, in which 17 sustainable development aims with 169 sub-aims have been stated (Transforming our world..., 2015).

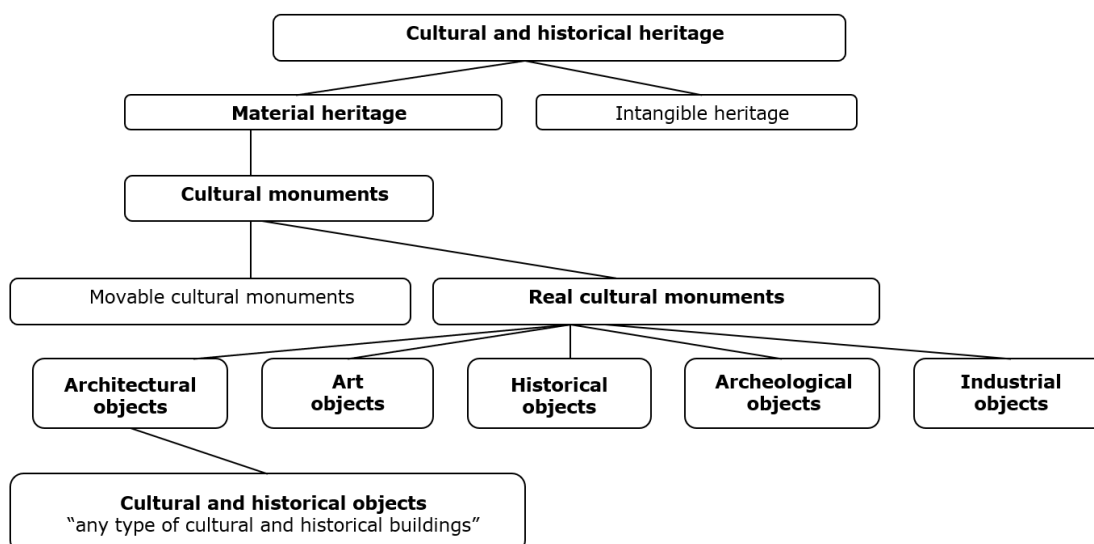
In the Republic of Latvia, the most important document with the long-term development aims and priorities is the Latvian Sustainable Development Strategy or "Latvia 2030". The Strategy is included in the Spatial Development Strategy, where the three main objectives are defined, one of them – to ensure maintenance of Latvian originality, which includes diverse nature, cultural heritage and unique landscapes (Valdmane, 2014). It is clearly seen that in these documents cultural and historical values are of great importance in promotion of sustainable development.

The legal base of the sustainable development strategy in Latvia is formed of several laws of the Republic of Latvia: "On Local Municipalities", "Law on Development Planning", "Law on Territorial Development Planning" and other normative enactments. The aim of the Land Management Law adopted at the end of 2014 in Zemgale also is to promote sustainable usage and protection of land. Land degradation issues are especially underlined in the law. In the Article 3 of the law, it is determined that planning usage of land the local municipality envisages in the territorial planning documents effective management of natural resources and sustainable development. Considering the above mentioned, it can be concluded that an important element in ensuring sustainable development is the ability to evaluate the usefulness and necessity of maintaining a definite object so promoting either destroying or maintaining the degraded objects. It is especially important in planning the territories in the cities, where next to the new town planning objects there are also different cultural and historical objects that have an important meaning in the history of every city and they often determine the further development of the city. Due to different reasons, this historical evidence is not always well maintained and sometimes is irreversibly subjected to degradation, so the land, on which these objects are located, is also degraded.

The cultural and historical heritage is the main treasure of a city that improves density of population and promotes economic development. In general, the future to a great extent depends upon correct and efficient management of different resources; therefore, also maintenance of cultural and historical objects has become an important strategy in promotion of sustainable development of the city environment. The concepts "*cultural and historical heritage*" and "*sustainable development*" are today closely related. Relating them makes it possible to relate the past, present and future better trying to achieve objective balance in the management of the whole territory of the city. In order to ensure sustainable development of the city, the balance between the wish to develop the city, to maintain the existing in it environment and cultural history that improves the quality of life of the inhabitants in the city should be observed, at the same time giving invaluable value and investment in the future (Abdel Kader, 2011).

In order to state the rank of the cultural and historical objects in the cultural and historical heritage, a scheme was developed (Fig. 1). In the European Council general convention "*Council of Europe Framework Convention on the Value of Cultural Heritage for Society*", the cultural heritage

is formulated as follows: "Cultural heritage is a group of resources inherited from the past which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. It includes all aspects of the environment resulting from the interaction between people and places through time" (Council of Europe..., 2005). It is split in two groups- material and non-material heritage, but irrespective of which group it belongs, it is total treasure that is gained from the previous generations and should be passed over to the future generations. The concept "cultural and historical heritage" is mentioned also in the law of the Republic of Latvia (further in the text LR) "On Protection of Cultural Monuments" in the Article 1 "Cultural monuments are a part of the cultural and historical heritage". So, it can be concluded that cultural monuments fall into the group of the material heritage, which, in turn, is divided into movable and immovable cultural monuments (Par kulturas pieminekļu..., 1992). Nevertheless, in the above mentioned law the term "cultural and historical object", which is explained as "cultural and historical buildings of any kind" in the Regulations No. 1620 „Regulations on classification of buildings” of the LR Cabinet of Ministers of 22 December 2009, is not mentioned (Noteikumi par būvju..., 2009).



Source: author's calculations based on law "On Protection of Cultural Monuments" and Regulations No. 1620 "Regulations on classification of buildings" of the LR Cabinet of Ministers

Fig. 1. Classification of cultural and historical heritage

The **aim** of the present research is to evaluate the condition of the cultural and historical objects of Jekabpils city in context of sustainable development. The object of the research is cultural and historical objects (buildings) in Jekabpils city. The subject of the research is evaluation of the condition of these objects. For this reason, information is summarised about all buildings that are included in the list of protected cultural monuments in Jekabpils city: name, address, cadastre number, status of the owner. These objects were also inspected, visually evaluated and fixed in photos.

Jekabpils is one of the nine cities in the Republic of Latvia with a wide range of cultural and historical values. The city is located in the Southeast of Latvia, in the point of intersection of important railways and motorised highways that connect Latvia with Russia and Belarus. The city is crossed by such main motorways as A6 Riga – Daugavpils – Kraslava – the border with Belarus (Paternieki), A12 Jekabpils – Rēzekne – Ludza – the border with Russia (Terehova) and railway

lines of strategical importance: Riga – Daugavpils, Riga – Rezekne, Krustpils – Jelgava – Ventspils (the latter is used only for freight transportation).

Jekabpils city was historically established in 1962 by joining two different cities (Jekabpils and Krustpils), which were located on both banks of the Latvian fateful river the Daugava. The city is very rich in cultural and historical values created by different historical aspects, natural values as well as prominent personalities (*Strategiskais ietekmes uz...*, 2012).

In the territory of Jekabpils city, there are cultural and historical monuments of local as well as national meaning. The point "Jekabpils" of the Struve geodesic circle, which is included also in the UNESCO World Heritage List, should be mentioned. "Jekabpils city historical centre", which is divided in two parts marking the historical cities and is maintained from the 14th century, should be mentioned as one of the main town planning monuments. In the cultural and historical centre, there are the historical streets of the city on both banks of the river Daugava with their historical buildings. These are mainly one and two storied wooden buildings from the 19th century and brick houses with luxurious facades built at the end of the 19th century and the beginning of the 20th century, their total amount is close to three hundred.

To evaluate the condition of these cultural and historical objects and the possibilities for their maintenance, within the research all historical buildings that are included in the above mentioned list of cultural monuments as well as the buildings, which are not mentioned as independent objects in this list, but are within the borders of the city historical centre, were inspected. One of the authors of the present article, who is a certified landscape architect, visually evaluated the present condition of the buildings using the categories: "very good", "good", "satisfactory", "bad", "very bad" in accordance with own developed criteria characterising the buildings and their environment (Table 1).

Table 1

Criteria for visual evaluation of condition of cultural and historical objects

Very good condition	Good condition	Satisfactory condition	Bad condition	Very bad condition
<ul style="list-style-type: none"> – Restored building – In visually good condition – Historical value maintained – Fits in surrounding environment 	<ul style="list-style-type: none"> – Well maintained buildings – Historical evidences maintained – Without essential damage 	<ul style="list-style-type: none"> – Moderately maintained buildings – Damage of historical elements can be seen – Insufficient management is evident – Historical elements are replaced by improper materials 	<ul style="list-style-type: none"> – Buildings are not well maintained – Traits of degradation in the territory – Maintained historical values are damaged 	<ul style="list-style-type: none"> – Buildings are not used and managed – Visually spoil surrounding environment – Territory subject to degradation

Source: author's calculations

For maintenance of cultural and historical objects, it is important to know who owns these objects; therefore, in the research using the address and cadastre number, and the State Land Service website www.kadasters.lv for all objects the kind of property according to the status of the owner was determined: state property, municipal property, property of a physical person, property of legal person, mixed status joint property and especially marked property of foreigners. In the research, the condition of the cultural and historical objects depending on the owner has been analysed.

Research results and discussion

1. Characterisation of the situation

The territory of the historical centre of Jekabpils city is included in the list of national town planning monuments with No. 7432. For this monument of town planning only the borders are determined, but its inventory listing the cultural and historical objects and their value has not been performed. Inspecting this territory, there were 299 objects – historical buildings stated and listed. A small number of these buildings that are within the borders of Jekabpils historical centre are included in the list of protected cultural monuments. In this list, there are also several buildings of the city included that are located outside the city historical centre. In total, 21 objects in this list are mentioned as national architectural monuments and 49 objects as architectural monuments of local meaning. The situation is as follows: although the whole territory of the centre has got the status of a town planning monument of national importance, the largest part of the historical centre buildings is not protected as they are not included in the above mentioned list. In order to get a general view on the condition of the cultural and historical objects in the city, all cultural and historical objects in the historical centre of Jekabpils city as well as the objects mentioned in the list of protected cultural and historical monuments that are located outside the historical centre were inspected, listed and evaluated according to the above mentioned criteria. In the research, the following objects are analysed separately:

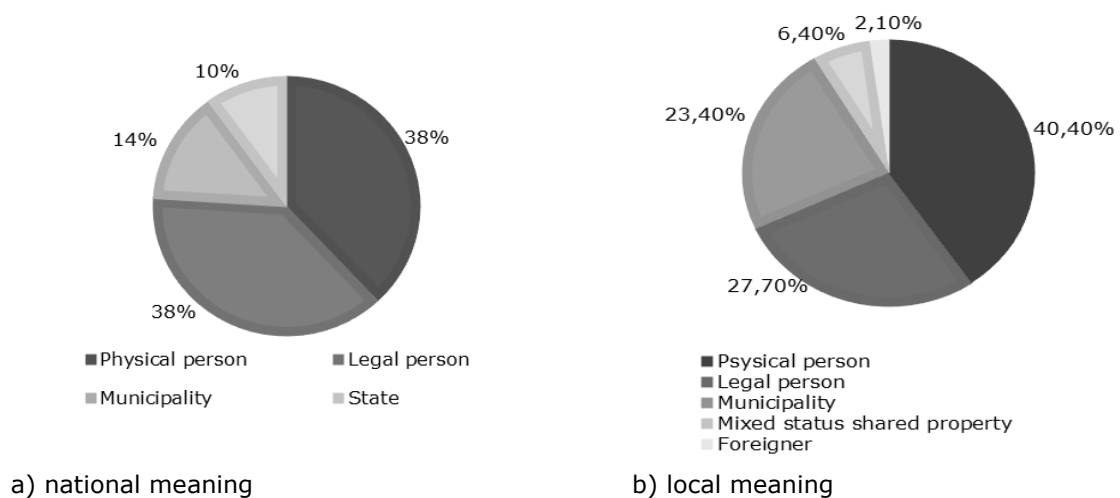
- cultural and historical objects included in the list of cultural monuments of national meaning - 21;
- cultural and historical objects included in the list of cultural monuments of local meaning – 49;
- objects located in the cultural and historical centre – 299.

2. Analysis of the objects included in the list of cultural and historical monuments

In compliance with the law "cultural monuments in the Republic of Latvia can be properties of the state, municipalities, other public persons and private persons" (Par kultūras pieminekļu...,1992). Analysing the objects included in the list of cultural and historical monuments of national meaning according to their ownership, it can be seen that the largest part of them is a property of physical persons (33 %) and legal persons (33 %). They are mostly living houses owned by physical persons and several household buildings (for instance, a barn, a threshing barn) that have historical importance. In turn, legal entities own several churches and outhouse buildings (barns, sheds, barrack buildings). Two of the objects included in this list (the historical building of the district school and the barn) are owned by the government institutions, but three objects (Krustpils castle and two household buildings) are owned by the local municipality. Inspecting these objects, it can be concluded that the cultural and historical monuments owned by the state and the local municipalities are comparatively well maintained. Also the cultural and historical monuments owned by legal persons (especially the church buildings) are in a good condition except one object – the barrack building, which is in a very bad condition and subject to degradation. In turn, the condition of the objects protected by the state but owned by physical persons is different – mostly in good and satisfactory condition, nevertheless, some buildings are practically not used and are in decay (Fig. 2).

Also the objects in the list of cultural and historical monuments of local meaning, in total 49, are owned mainly by physical persons (40 %) and legal persons (29 %) (Fig. 2). Under the ownership

of physical persons from these groups there are mainly living houses or living houses with a shop or pharmacy, among them the memorial house, but under the ownership of legal persons – also living houses, several churches, health centres, the bank building and the construction of the former manor. A part of the objects in the list of cultural and historical monuments of local meaning are owned by the local municipalities; they are the building of the historical district county court, the former Abelū and Krustpils village council and board buildings, the former Guard house, some living houses etc. Evaluating the condition of the objects listed in the list of cultural and historical monuments, it can be concluded that in general the situation is seemingly satisfactory, still the fact that a part of the objects are not used or are in a bad condition is not favourable. Besides, these objects that are in a poor condition are owned by physical persons as well as by legal persons and also by the local municipality. Furthermore, several properties owned by the legal persons (4 %) are evaluated even as being in a very bad condition.



Source: author's calculations

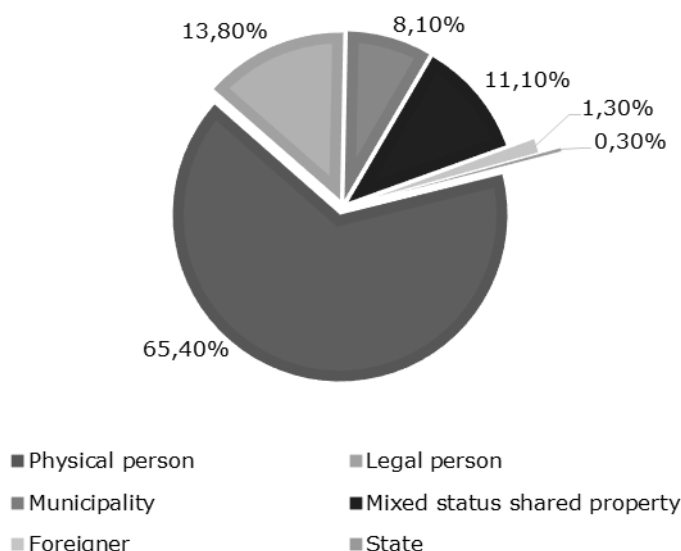
Fig. 2. Ownership of Jekabpils city cultural and historical objects of national and local meaning

3. Analysis of the objects located in the territories of the city historical centre

Researching in the ownership of the buildings located in the historical centre, it has been stated that the most part – 195 or 65.4 % of the buildings are owned by physical persons, 41 buildings or 13.8 % are owned by legal persons and 24 buildings or 8.1 % are owned by local municipalities. Owners of 4 buildings (1.3 %) are persons living abroad. 33 buildings or 11.1 % have a status of joint property, but only one object (0.3 %) is under the state ownership. This is a building in 1 Pasta Street having a historical name "District school". This building is included in the list of cultural and historical monuments of national meaning. Inspecting the building, it was stated that its visual condition is good (Fig. 3).

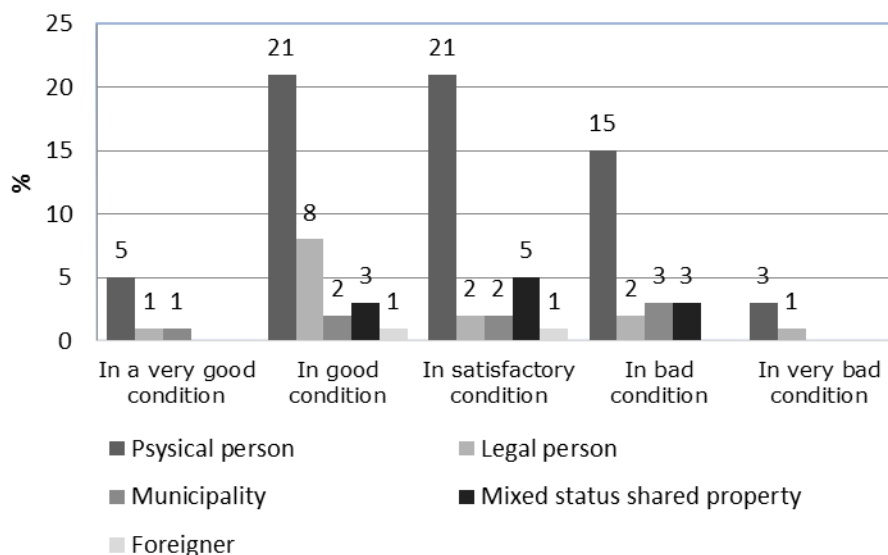
Evaluating the condition of the buildings in the territories of the historical centre, it can be concluded that 42 % of the buildings are in a good and very good condition, 31 % of the buildings – in a satisfactory condition. Still, the fourth part of the buildings is in a bad or very bad condition (Fig. 4). The most part of the buildings in bad condition belong to physical persons. At the same time, there are also many buildings owned by physical persons that are in a good and satisfactory condition. Summarising the obtained results, it can be concluded that the most part of the inspected objects in the territories of the historical centre are living houses, the owners of which try to tend their properties properly. Nevertheless, inspecting these objects, it has been stated that

some of the owners have chosen cheaper materials for repairing their buildings, for instance, replacing the historical windows with plastic ones so reducing the authenticity of these buildings. In such cases the visual condition of the buildings was assessed as satisfactory (Table 1) and, as it can be seen, there are comparatively many cases with satisfactory evaluation, especially the buildings owned by physical persons (Fig. 3).



Source: author's calculations

Fig. 3. Proportion of buildings according to ownership in historical centre territories



Source: author's calculations

Fig. 4. Evaluation of objects in territories of Jekabpils city historical centres (%) according to ownership

As the performed analysis shows, in Jekabpils city there is a wide range of cultural and historical objects that reflect the rich history of the city and are important in promotion of sustainable development. Nevertheless, the physical and visual condition of these objects is different. A large part of the objects, especially in the territories of the historical centres, mainly the living houses owned by physical persons are predominantly in a satisfactory or good condition, still almost one fourth of them are in a bad or even in a very bad condition. Besides, a part of them are included in

the national level list of cultural and historical monuments as well as in the local level list. Also several buildings that are included in the mentioned lists and are owned by legal entities and the local municipality are in a bad physical condition; these are most often buildings of social significance. Churches are an exception as their condition is good. Although not all of the existing buildings in the territories of the cultural and historical centres are included in the list of cultural and historical monuments, still they all together form a territory that is a cultural and historical monument.

Entering the property rights on immovable property that is considered as a cultural monument in the Land Register, restrictions of the immovable property rights should be marked, so these objects are officially recognised as encumbrance for their owners. In compliance with the law, physical persons and legal persons should ensure that the cultural monuments owned by them are maintained. Maintenance of the cultural monuments owned by the state should be ensured by the persons responsible for them. In the law "On Protection of Cultural Monuments", it has been stated that conservation, maintenance, repair and restoration of the cultural monuments is done by their owners at their own expenses. It should be admitted that not all inhabitants have enough finances for maintaining and repairing of their properties and, moreover, the status of a cultural monument requires different additional provisions and requirements in this work.

Cultural and historical heritage is a value for all inhabitants of the city and its guests; therefore, its management and maintenance are of great importance. Their maintenance invests in economic development and increases the development of international tourism (Karnite, 1999). The local municipality of the particular territory has great importance in maintaining of the cultural and historical heritage and informing of the society about these values. There are also good examples of this in Latvia, for instance, in the city Kuldīga, the council of which has made great investment in gathering information about the cultural and historical values, involving and educating the society achieving good results (Jakabsone, 2010). There are also many examples outside Latvia in the economically developed countries, where the significance of cultural and historical objects is on a much higher level as it is today in Latvia (Karnite, 1999). Nevertheless, also there, in spite of the fact that the society is educated and interested in maintenance of the cultural and historical heritage, still additional stimuli are needed in this sphere (Turlaja, 2011).

Conclusions, proposals, recommendations

- 1) In Jekabpils city, there is a wide range of cultural and historical values that are influenced by different historical aspects, the geographical location, natural values and prominent people. Comparatively many cultural and historical objects are included in the list of protected cultural monuments. Jekabpils city centre is listed there as a special cultural monument of national meaning, although the status of a cultural monument is assigned only to separate buildings of this centre.
- 2) The objects included in the Jekabpils city and local level list of protected cultural monuments are owned mainly by physical and legal persons. Usually these are living houses owned by physical persons. In turn, several churches and household buildings are owned by legal persons. Inspecting these buildings, it has been stated that their present condition is different – in total the condition is satisfactory, but there are well maintained buildings as well as several buildings that degrade the territory.

- 3) Also in the territory of "Jekabpils city historical centre" that is included in the list of protected cultural monuments on the national level the most part (more than 65 %) is occupied by living houses owned by physical persons. Generally, the buildings in the territory of this centre are in a good and satisfactory condition; nevertheless, the fourth part is occupied by buildings in a bad condition.
- 4) Cultural and historical heritage is a value; its maintenance and information of the society about these values are important aspects in the development of the territories. The local municipality of a particular territory plays an important role in maintenance of cultural and historical heritage and information of the society about these values. In any case, formation of different communes and associations, how to organise consultations, development of guidelines and accessibility as well as information and education of the society should be considered.

References

1. Abdel Kader, B. (2011) *Heritage Rehabilitation in Sustainable Development Policy for a Better Environment Quality in Small Historical Coastal Cities: the Case of Cherchell in Algeria*. 2011 International Conference on Green Buildings and Sustainable Cities. *Procedia Engineering*, No. 21, p. 753–759.
2. Drexhage, J., Deborah, M. (2010) *Sustainable Development: From Brundtland to Rio 2012*. Paper presented at the High Level Panel on Global Sustainability at its first meeting, 19 September 2010, United Nations Headquarters, New York.
3. *Council of Europe Framework Convention on the Value of Cultural Heritage for Society* (2005). Retrieved: <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=0900001680083746>. Access: 05.02.2018.
4. *Ilgtspejiga attistiba: VARAM mājaslapa*. (Sustainable Development: home page of Ministry of Environmental Protection and Regional Development of the Republic of Latvia). Retrieved: http://www.varam.gov.lv/lat/darbibas_veidi/ilgtspejiga_attistiba/. Access: 31.01.2018.
5. Jakabsons, J. (2010) Kultursturiska mantojuma saglabasana un attistiba – viena no pilsetu ilgtspejigas attistibas nostadnem. Kuldigas pasvaldibas darbs kultursturiska mantojuma saglabasana. RTU zinatnisko rakstu serija: Ilgtspejiga telpiska attistiba, Sejums Nr.1, 99. – 103. lpp.
6. Karnite, R. (1999) Kulturas sektora tautsaimnieciskais nozimigums. Retrieved: https://www.km.gov.lv/uploads/ckeditor/files/kultura_timekli/Kult_Sekt_Nozimig_1999.pdf. Access: 05.02.2018.
7. *Latvijas Nacionalais zinojums "Rio+10" ANO Ilgtspejigas attistibas konferencei Johannesburga*. (2012) LR Ministru kabineta rikojums Nr. 435. Riga. 56 lpp.
8. *Noteikumi par buvju klasifikaciju*: MK 2009. gada 22. decembra noteikumi Nr. 1620. Latvijas Vestnesis, Nr. 205, 2009. gada 30. decembri (Regulations on classification of buildings).
9. *Par kulturas piemineklu aizsardzibu*: LR likums (1992), pieņemts 12.02.1992. (On Protection of Cultural Monuments: Law of the Republic of Latvia).
10. *Strategiskais ietekmes uz vidi novērtējums. Vides pārskats. Jekabpils pilsētas ilgtspejigas attistibas strategijai 2014. līdz 2030. gadam. Jekabpils pilsētas attistibas programmai 2014.–2020. gadam* (2012). Jekabpils. 102 lpp.
11. *Transforming our world: the 2030 Agenda for Sustainable Development* (2015). Retrieved: <https://sustainabledevelopment.un.org/post2015/transformingourworld>. Access: 02.02.2018.
12. Turlaja A. (2011) Kulturas mantojuma politika un prakse Lielbritanija. Biedribas "Es Latgalei" pieredzes brauciena apkopojums projekta "Biedribas "Es Latgalei"" un citu NVO kapacitates un lidzdalibas resursu stiprinasana ietvaros. Biedriba "Es Latgalei". Retrieved: <https://eslatgalei.files.wordpress.com/2011/06/buklets-lejuplc481dei.pdf>. Access: 05.02.2018.
13. Valdmane I. (2014) Metodiskie ieteikumi regionala un vieteja limena ilgtspejigas attistibas strategiju izstradei un to vertesanas kartibai. Vides aizsardzibas un regionalas attistibas ministrijas Telpiskas planosanas departamenta Planojumu uzraudzibas nodala.

MONITORING AND REPORTING SYSTEM FOR MUNICIPAL SUSTAINABLE DEVELOPMENT GOVERNANCE IN LATVIA: SUSTAINABILITY OUTLOOK

Jānis Kaulins¹, Dr.Geogr., Raimonds Ernsteins², Dr.habil .Paed.,
Ivars Kudrenickis³, Dr.Sc.ing.

^{1,2,3} University of Latvia, Environmental Science Dept., Latvia

Abstract. Saulkrasti municipality is the first in Latvia local authority where a sustainable development planning and its governance performance success measurements have been completed, based on sustainability indicators, realised in the frame of research-and-development project. The overall aim was to study municipal sustainable development governance process cycle performance qualities and quantities, including social-ecological system studies, planning process, produced documents and their implementation studies as well as studies of construction and testing of necessary IS. The following research methods were complementary used: case study research; approbation research; expert interviews. The data and information basis of measurements were collected using official statistics; information of municipal institutions and enterprises; also private business; inhabitants survey and public monitoring. Monitoring and measurements were based on application of the set of 64 indicators, a comprehensive indicator system (IS), that has been approved and included as an integral part of a mandatory municipal long-term planning document – Sustainable Development Strategy (2013). Weaknesses identified during the first cycle of the full approbation of this existing IS, are revised in the new post-monitoring version of it. Results of the measurements are reflected in the new type of municipal governance document named as municipal Sustainability Outlook – Municipal Sustainable Development Governance Survey. This document is meant to support strategic decision-making and provide municipal collaborative communication with all stakeholders' groups, and, particularly, general society, including also public participation. Sustainability Outlook report is a generalized overview of indicators measurements and their interpretations, which reflects sustainable development governance success by: thematic groups of indicators, sustainability dimensions, mandatory including also governance, in the territory in general. The IS functionally is an essential instrument, being a part of the necessary eventual municipal monitoring program, which are to be developed in the both, general and also in thematic/sectoral development areas (like coastal governance or tourism etc.) of municipality. There would be necessary to comprehend all new and existing IS in planning regions of the country and at the national governance level, in order to form harmonious vertically and horizontally integrated common National indicator system's network, also aiming to involve the public more widely in the local sustainable development aiming process and its governance measurements and evaluation. Importantly, in this way to make the introduction and use of such IS at municipal level in the future simpler and cheaper. Respectively, developed with certain regularity municipal sustainability report, may become an effective municipal governance instrument for the assessment of implementation of different planning documents and general performance of development governance in each local territory, within context of wider public needs and public participation.

Keywords: sustainable development, governance, municipal monitoring, indicator system, sustainability reporting.

JEL code: Q56; Q58

1. Introduction: sustainable development planning practice

Sustainability concept in its modern understanding got wider resonance through the Agenda 21 document adopted during the world sustainability conference in Rio in 1992 that later has been transposed to the local level (*Prescott-Allen, 1995; Brugmann, 1996* etc.) and widely implemented in many countries as Local Agenda 21 documents. It has been followed by refection of sustainable development (SD) principles in policy guidelines and practical recommendations (*UNEP, ICLEI, 1996*), requesting: monitoring as a mandatory factor of SD; public involvement in all stages of SD and its planning process; and calls for integrative nature of SD. Spatial development planning system in Latvia, to a large extent, is based on Agenda21 and Local Agenda21 guidelines, however

¹Corresponding author. E-mail address: janis.kaulins@lu.lv

²Corresponding author. E-mail address: raimonds.ernsteins@lu.lv

³Corresponding author. E-mail address: ivars.kudrenickis@lu.lv

often only formally (Kaulins, 2015). Already in the normative level, Law on Development Planning System (*Saeima, 2008*) foresees a requirement for planning documents monitoring. Law on Spatial Development Planning (*Saeima, 2011*) determines that for medium and short-term documents monitoring must be done using indicators system (IS) that has to be included in the planning documents composition. Besides, parameters listed in environmental report of specific planning document's strategical environmental impact assessment shall be monitored, as well. There are not envisaged other types of monitoring requirements, neither support measures for monitoring in normative acts. This is not in line with emphasized sustainability principle compliance requirement present in mentioned acts of legislation because action monitoring and success evaluation of development strategy as the main sustainable development planning document is not envisaged. Despite that, there is a number of municipalities, which are interested into in-depth assessment of their development strategy, in order to upgrade medium-term planning guidelines and update and make more efficient local action programs. Important here is communication aspect, providing precise and reliable information for decision makers and society.

There was elaborated research-and-development (R&D) process approach with the overall aim to study municipal sustainable development governance (SDG) process cycle performance qualities and quantities, including research tasks for territorial social-ecological system studies, planning process, produced documents and their implementation studies as well as development tasks for the studies of construction and testing of necessary IS. The following research methods were complementary used: (1) case study research (CSR), realizing document studies and field studies, including interviews with target group representatives (2) approbation research for testing R&D results; (3) expert interviews beyond the CSR frame. Thus, Saulkrasti Municipal Council in 2012, when starting development of its Sustainable development strategy, has taken decision to include SD and its governance IS in the document as it was methodologically developed by the researchers of the University of Latvia. IS was developed (*Kaulins, 2015*) and approved in 2013 with the decision of municipal council as the first of a kind monitoring system in Latvia, which rooted directly in the planning process and planning documents guidelines (*KBLC 2013*). A set of our publications has been dedicated to the system itself and later also to the results of specific indicator measurements in Saulkrasti municipality (for example, *Kaulins, 2015*). However, the same level of recognition has to be paid to results communication to the public, thus fostering its involvement in use and further development of the system. The approach of SD and its governance assessment in Saulkrasti was based on indicator method (*Kaulins, 2015*), that allowed to create a system, which, from one side, is based on four basic sustainability dimensions – natural, economic, social and governance environment, highlighting mutual integration of these dimensions, and connecting them with so called priority integrative municipal problem areas, which identification, on its turn, has been carried out based on long term strategic guidelines.

In 2015 and 2016 in the frame of the State Research Program SUSTINNO full system measurements were done. In 2017 a concept of integrative summary report – Sustainable development governance survey (SDGS) – was developed to reflect all results, based on similar elaborations started on Environmental governance Outlook proposals (*Ernsteins, 2016*). It is innovative for Latvia pre-planning and target groups communication proposal, novel is also a developed SDGS report itself. This Sustainability Outlook, as SDGS is called in short, is a generalized overview of indicators measurements, which reflects sustainable development

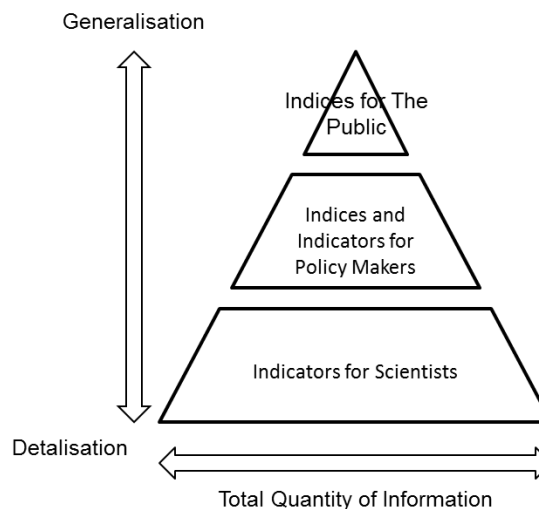
¹Corresponding author. E-mail address: janis.kaulins@lu.lv

²Corresponding author. E-mail address: raimonds.ernsteins@lu.lv

³Corresponding author. E-mail address: ivars.kudrenickis@lu.lv

governance success by: thematic groups of indicators, sustainability dimensions, and governance in the territory in general.

Shields (see Fig. 1) has justified generalization principles of information provided by indicators and their system (*Shields et al., 2002*) at the same time indicating, that all received information must be made public. SDGS consists of separate indicator reports (1st level of pyramid) and it forms 2nd and 3rd level of pyramid. The final version of the report is the subject of public discussion process, taking into account at least the requirements of formal consultation procedure (*Cabinet, 2009*).



Source: *Shields et al., 2002*

Fig. 1. Indicator information pyramid according to the target groups

2. Methodology: indicator's measurements and processing for reporting

Research-and-development (R&D) approach was used as methodological framework for indicator system (IS) studies in Saulkrasti as a pilot municipality in Latvia. Necessary sociological studies (interviews, public survey, round-table discussions) were done by university researchers already during initial design period of the municipal IS (2011-2012). Additional methods included stakeholder interviews during implementation of IS in 2014, before the measurements of indicators have started. Measurements were finalized into the format of each individual indicator structured reporting (approximately 3-4 pages for each and about 160 pages in total) to be professionally used by municipal staff, experts. But, in order to prepare summary information for main stakeholders and general public, there have been designed and drafted a new type of public discussion and pre-planning document – Sustainability Outlook, which again is a novel approach in the Latvian municipal practice.

IS as it has been initially designed and officially approved by the municipal council in 2013 included 63 indicators, which were grouped according to traditional municipal planning sectors that, in turn, were grouped into four sustainable development dimensions (natural environment, economic, social environment and, a mandatory also governance dimension), finally a separate integral or strategical indicators group was introduced too. For each indicator a comprehensive, precise measuring methodology was developed; together with general directions for use of the indicator system. These provisions were summarized in a User's guide manual (*KBLC, 2013*). The data and information basis of measurements now was made up of: official statistics; information provided by municipal institutions and enterprises; information provided by private business;

¹Corresponding author. E-mail address: janis.kaulins@lu.lv

²Corresponding author. E-mail address: raimonds.ernsteins@lu.lv

³Corresponding author. E-mail address: ivars.kudrenickis@lu.lv

inhabitants survey; and public monitoring. Besides, the results of survey conducted in the frame of municipal planning process in 2012 were used, where they were relevant to the measurements done in 2014. In majority of cases data were available as requested by the indicators methodology, although there were some differences. Data were processed in 2015 and in 2016 they were compiled in the indicators initial report (Kaulins, 2016).

Further on the second part of the research-and-development framework are to be elaborated – the municipal action policy and planning initiatives and documents – and following methodological principles and approaches developed and applied. The research and assessment results are to be summarized into **generalized and integrative survey about measurements of indicators**, which in a concentrated way reflects current strategic sustainable development governance success and shortcomings by: sustainability dimensions; regarding long-term strategical elements – formulations (main goal, goals, long term action directions); and governance of the territory in general. Such type of reporting, which currently is not a mandatory municipal document, potentially has to be approved and disseminated by the municipal council, besides it is advisable that it is first of all publicly discussed and so contributed for its data and planning adjustment interpretations, before getting its final shape and further municipal planning conclusions.

The content of sustainability report is formed of the following sections: 1) Saulkrasti municipality sustainable development governance indicator system that includes short description of the system and indicators table; 2) the course of indicator measurements in 2012-2014 that includes technical information about measurement performers, data sources etc.; 3) Saulkrasti municipality sustainability general characteristics: natural environment, economic environment, social environment, governance, and integral (strategical) indicators. 4) general characteristic of Saulkrasti municipality's sustainability; 5) resume by sustainability dimensions and assessment of the results from perspective of sustainable planning guidelines. Document ends with public needs orientated summary about sustainability of the Saulkrasti municipality development in 2014.

The most important methodological element in the composition of SDGS is **structure of the dimensional description**, which is provided in the 3rd section. Dimensional description is started with explanation, what is its content and which structural elements of the municipality are relevant to the specific sustainability dimension. It is followed by sustainability situation description of a specific dimension, illustrated by the most interesting results of indicator measurements providing either very typical or unexpected results. A concluding part of description provides general conclusions and highlights positive and negative (which needs specific attention) factors of a dimension. Description is illustrated by graphical representation of sustainability measurements. Conclusion part provides guidance in which direction decisions must be made, in order to improve the situation in specific sustainability dimension, as well as it provides a concrete list of recommended actions. Some considerations are made on necessary additional information for better planning of further actions. A final part of the section reflects public and experts' opinion where such have been expressed, as well as, considering the long process of information processing, a short report is given about what has happened since 2014, if there were some crucial, visible changes, comparing with the measurements.

After presentation of the material in the municipality and discussion with municipal leadership And specialists, all results and recommendations were forwarded to municipality for the further actions to be done, including for communication with society's target groups, as well as for

¹Corresponding author. E-mail address: janis.kaulins@lu.lv

²Corresponding author. E-mail address: raimonds.ernsteins@lu.lv

³Corresponding author. E-mail address: ivars.kudrenickis@lu.lv

discussion on interpretation of survey results and development of proposals for annual update of the municipal development program (medium-term document for 7 years' period).

3. Municipal policy development: results and discussion

3.1. Dimensional sustainability assessment in Saulkrasti municipality

Assessments of all sustainability dimensions are formed following the structure described in the previous chapter. For illustration, integrative elements of economic dimension assessment are provided here. In general, economic environment sustainability is assessed as limited. Situation with municipal budget develops positively, however a base for budget (private sector development) is not balanced. In general context, successful are activities of the Skulte harbour. Tourism, which is the second strategical priority of the municipal development, is stagnating. There is not identifiable real movement towards another strategic goal targeted to receiving a resort status. These processes are developing in the circumstances of an ever-increasing labour supply deficit. However, a set of preconditions exists for successful development: good work of tourism information centre, developed transport infrastructure (except pro-environmental bicycle infrastructure), increase of a total number of visitors to the municipality, despite decrease of non-resident flows. Opinion of inhabitants and guests confirm this assumption, because the main asset of the municipality – its coastal area – is mostly positively evaluated both in terms of environmental, and improvement aspects.

Positive. In general budget situation is seen as favourable and developing in desirable direction. Municipality has overcome consequences of the financial crisis of 2008. After 2013 significant growth of external co-financing of infrastructure projects is observed; new business areas have been developed, competitiveness of municipality economy has grown; continuing port development, what has contributed substantial capital investments in the local infrastructure. Progress is seen as regards practically all indicators; successful results are seen in work of tourism information centre; positive evaluation of the coastal environmental situation and infrastructure, however, potential for further significant improvements has been recognized.

Negative, where attention has to be paid. There exists ever-increasing lack of labour supply in the municipality, which will influence human resources-intensive tourism sector development. Return of long term investments into budget is a very slow, similarly, as in the majority of municipalities of Latvia, thus a local budget is not sufficient to ensure dynamic infrastructure development. There is increase in number of jobs only in public sector. Railway is poorly adjusting to the needs of permanent residents of the municipality; practically there does not exist bicycle lanes network; small number of accommodation and catering service providers does not match with planned priorities of the municipality economic development. There is lack of unique offer, including in health tourism. As consequence – non-resident attendance decline. In general, development of tourism sector is weak and unbalanced, some its segments become weaker, while others uncompetitive. There is lack of interest in eco-certification.

Where additional information is needed. There is a need of data on municipality GDP sectoral breakdown for the assessment of the sectoral input in development; actual job situation in small enterprises; actual situation in small tourism enterprises regarding seasonality, workload, and employment. **Recommended actions.** Strategical goals of municipal development must include measures for: improvement of demographic structure; creating favourable circumstances for young families with children; necessary bicycle infrastructure development action plan.

¹Corresponding author. E-mail address: janis.kaulins@lu.lv

²Corresponding author. E-mail address: raimonds.ernsteins@lu.lv

³Corresponding author. E-mail address: ivars.kudrenickis@lu.lv

3.2. Integrative overall assessment

The overall assessment of sustainable development shows relatively good sustainability indications as regards natural environment, on the backdrop of somewhat delayed social and economic development. However, there could be recognized a certain balance in the ratio of the sustainability dimensions, with a slight predominance of the natural environment. This is a positive sign, at the same time it also means that without changing the basic socio-economic conditions, the situation will not change significantly. Here, as a critical factor, is a shortage of development territories and natural resources, together with the poorly developed region's strategic economic sector - hospitality in the tourism sector. The planning of the municipal development policy considers these three issues as highest priority. A significant sustainability reserve lies in better infrastructure of the "Gardeners' communities" and involving inhabitants of these areas in the public and economic processes of the municipality. The "Gardeners' communities" are made up of several hundred tiny land properties with a very small area – typically 600 square meters, which are concentrated in certain areas of the municipality and which mostly belong to the inhabitants of the capital city of Riga, who mostly stay here in the summer. The influence of Riga's proximity is dual. On one hand, it reduces the economic activity in the municipality and does not replenish municipal budget. On other hand, it is a socially stabilizing factor, reducing the dependence of local welfare on its limited capacity and, also reducing effects of external factors on fragile local economy.

Municipality's Sustainable Development Strategy defines three development goals: 1) activities towards obtaining a resort status; 2) effective port activity, and 3) adequate for inhabitant needs educational, cultural and sport infrastructure. Progress towards the first goal is limited, as seems the entrepreneurship sector does not recognize enough potential in this area, but the local administration has not taken sufficient management decisions that could trigger the situation. The self-organization of entrepreneurs has not been active either. With regard to the port activities, management decisions have fostered investment in port development and progress towards the goal is successful. Certain sustainable development threat is seen in growing environmental impacts of port operations. There is currently no comparative measure that would allow for the long-term evaluation of the availability and assessment of various social infrastructure components; this will be possible through the second cycle of measurements of indicators. However, it can be argued having compliance with the regional development centre status, with the exception of certain formal positions in the field of public administration.

The main conclusions on the sustainability of the municipality are as follows: most indicators indicate a moderately positive trend towards sustainability; none of the calculated indicators indicates a significant mismatch of management with regard to sustainability as the basic setting for governance development. The municipality is recovering from the economic crisis as a factor negatively affecting sustainability. **Critical factors of sustainable development** of the municipality are: lack of development territories and labour force reserve; poorly developed economic sector – hospitality services. A significant sustainability reserve lies in the improvement of the infrastructure for the areas of "Gardener communities" and the involvement of the inhabitants of these territories in the social and economic life of the municipality.

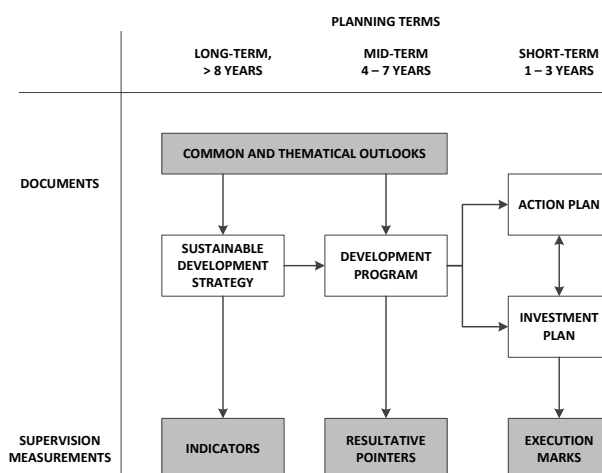
¹Corresponding author. E-mail address: janis.kaulins@lu.lv

²Corresponding author. E-mail address: raimonds.ernsteins@lu.lv

³Corresponding author. E-mail address: ivars.kudrenickis@lu.lv

3.3. From indicator system and sustainability report towards municipal monitoring

The Municipal Monitoring System should reflect implementation of all three planning periods (long-term, medium and short-term) policies and their planning documents. Each specific type of planning document has its own type of parameters (Fig. 2). Implementation of sustainable and integrated management requests equal respect to all stages of the **governance cycle**. Thus, the research results of the **interactions of natural sciences and social sciences** must be transformed into the development of a local level science-policy-practice process and content development. The mediator, in the particular case is science sector, needs to be presenting in the form, terminology and procedural context that is perceived by the target group. Unfortunately in general, the results of significant scientific research still in the Latvian situation are used insufficiently in the realization of the municipal governance. Considering the fact that there is a certain similarity between the organizational and informative aspects of indicators and resultative pointers (RP) measurement, but the difference is basically only in the methodological detail, it is purposeful to develop a multi-component, unified monitoring system and mechanism for its implementation and maintenance (Kaulins, Ernsteins, 2018). Indicators operate in the long run and, in general, do not depend on the guidelines contained in the planning documents. A separate group of strategic or integrated indicators characterizes the sustainability of the site and sustainable development in general; some of them may not be directly attributed to the strategic objectives set out in the long-term planning documents but characterize the sustainable development of the territory as a whole.



Source: Kaulins, Ernsteins, 2018

Fig. 2. Monitoring system tools for development planning documents

The essential feature of the IS is the early warning. Another important function is communication with the public, informing, educating and involving in management of the IS. The second set of parameters consists of RP, which essentially illustrate the consequences of the implementation of the planning document. Their task is to observe how progress is being made towards the established medium-term goals and how the directions for action defined within them are implemented. In some respects, RP is also a prognostic tool, but the forecast is limited by the guidelines and deadlines set in the planning document. Practice confirms that a large part of the RP sets basically the characteristics of the indicators, which allows to expand the specific PP functions up to the indicator level. This can be done by including the relevant to RP indicator system and

¹Corresponding author. E-mail address: janis.kaulins@lu.lv

²Corresponding author. E-mail address: raimonds.ernsteins@lu.lv

³Corresponding author. E-mail address: ivars.kudrenickis@lu.lv

developing the appropriate methodological provision. The third set of parameters is an execution pointers (action marks) that illustrates the execution of specific actions within the deadline and its status. Typically, this can be reduced to a non-numeric character of a binary "executed-non-fulfilled" type. Such a parameter can by definition not be an indicator and, in fact, neither RP. However, among the performance indicators, it is possible to select parameters with a numerical nature, such as, for example, the amount of funding received or the amount of activities implemented. In this case, there will be a partial overlap of the set of performance indicators with the PP set.

A significant subset, which can include all three types of previously described parameters and which is characterized by a specific way of obtaining information, are **public monitoring parameters**. They are characterized by the acquisition of data in a systematic public involvement process – by volunteers performing field observations, surveys, and more activities. It's possible to talk about citizen science, when people without special knowledge, after some guidance/ training, are purposefully involved in solving of scientific problems or, in the case of municipal monitoring, solving economic and management problems with scientific methods. Public monitoring not only provides access to data that are otherwise unavailable, but also plays an important educational role and enhances public confidence in monitoring results in particularly and in local governance in general.

Conclusions

- 1) The practice of using the Sustainable Development Governance (SDG) IS in Saulkrasti municipality suggests that it can be the basis for monitoring, evaluation and re-planning of long-term territorial development planning documents, also assessing overall sustainability and preparing municipal governance recommendations in the frame of governance cycle. The IS based Sustainability Outlook provides an adequate understanding of progress towards SD in the context of SDG goals.
- 2) The experience gained during the first measurement and assessment cycle is helping in developing new IS for the needs of municipalities, making them to be more efficiently applied and better integrated horizontally and vertically with other planning documents of different governance levels.
- 3) The IS based Sustainability Outlook for SD governance demonstrates options of successful integration of scientific approach into the monitoring system and measurements' performance as well as overall assessment of SD for the preparation of decision-making recommendations. The role of science can be stressed in providing information to various local target groups on essential topics, being usually diffuse or difficult to access or understand.
- 4) The proposed municipal monitoring system combines assessment of SD and monitoring (supervision) of planning documents. Public monitoring component here ensures the acquisition of important, but otherwise inaccessible information, in combination with benefits of public involvement. A practice of regular publicly discussed reports shall increase public awareness and confidence in local government.

Acknowledgement.

The publication was prepared in the framework and with financial support of National research program SUSTINNO project "Environmental diversity and sustainable governance".

¹Corresponding author. E-mail address: janis.kaulins@lu.lv

²Corresponding author. E-mail address: raimonds.ernsteins@lu.lv

³Corresponding author. E-mail address: ivars.kudrenickis@lu.lv

Acknowledgement shall be expressed to contributing project partners – Kristine Gaugere and Anita Lontone from the University of Latvia, and Normunds Licis from Saulkrasti municipal council.

References

1. Brugmann, J. (1996) Sustainable Development Planning: Assessing Progress Towards an Applied Methodology. Environmental Impact Assessment Review. Boston, MA: Massachusetts Institute of Technology (MIT).
2. Cabinet (2009) The Cabinet of Minister's Regulation No.970. at 25.08.2009. Latvia Republic. The Arrangements for Public Participation in the Development Planning Process".
3. Ernšteins R., Kaulins J., Lontone-Ievina A., Zvirbule L., Zilniece I. (2016). Environmental Integration Approach Complementary to Environmental Governance Outlook Development as Disciplinary Approach (in Latvian). Proceedings, 18th International science conference, Liepaja University, Liepaja, Latvija, May 2015, pp. 325-337.
4. Kaulins J., Vesperis V., Dombrovskis V. (2013) Latvia's Sustainable Development Strategy: The Supervision report. Cross-sectoral coordination center at Cabinet of Ministers. Latvia Republic. Riga, 127 p. (in Latvian)
5. Kaulins J. (2015). Indicators for Sustainable Development Governance (in Latvian). Doctoral thesis. University of Latvia, Faculty of Geography and Earth Sciences, Riga, 160 p.
6. Kaulins J. (2016) *The Saulkrasti Municipality Sustainable Development Governance Indicators: Reports on Measurement of 2014*. Project SUSTINNO, National research program, 160 p. (in Latvian)
7. Kauliņš J., Ernšteins R. (2018) Municipal Sustainability Monitoring: Necessity and Preconditions for National Sustainable Development Planning Supervision System (in Latvian). In monography (edit. Ernšteins R.) "Sustainable Development Governance and Environment" (in print), University of Latvia, Riga, Latvia.
8. KBLC (2013) Strategy for the Sustainable Development of the Saulkrasti Municipality. Development and Sustainability Indicators for Monitoring the System: User Guide. KBLC LTD., 2013., 140 p. (in Latvian)
9. Prescott-Allen, R. (1995) The Barometer of Sustainability. Victoria, BC, Canada: Project on Monitoring and Assessing Progress Toward Sustainability, 1995
10. *Saeima* (2008). Development Planning System Law. *Accepted at 08.05.2008*.
11. *Saeima* (2011). Territorial Development Planning Law. *Accepted at 13.10.2011*.
12. Shields, D.J., Solar, S.V., Martin, W.E. (2002) The Role of Values and Objectives in Communicating Indicators of Sustainability. Ecological Indicators 2 (2002), 149–160.
13. UNEP, ICLEI (1996). The Local Agenda 21 Guide. An Introduction to Sustainable Development Planning. 218p.

¹Corresponding author. E-mail address: janis.kaulins@lu.lv

²Corresponding author. E-mail address: raimonds.ernsteins@lu.lv

³Corresponding author. E-mail address: ivars.kudrenickis@lu.lv

IMPACT OF REAL PROPERTY MARKET ON CHANGES OF CADASTRAL VALUE AND FORMATION OF SAMARA REGIONAL BUDGET

Gabibulla Khasaev¹, Dr.Sc., professor; **Alexandr Vlasov**², Cand.Sc., professor;
Dariya Vasilieva³, Cand.Sc., docent; **Valentin Lobanov**⁴ and **Velta Parsova**⁴ Dr.oec., professor
^{1,2,3}Samara State University of Economics, Russia, ⁴Samara Territorial appraisal Agency, Russia,
⁵Latvia University of Life Sciences and Technologies

Abstract. In the Russian Federation, since 2014 the rules for calculating property taxes have been changed. The tax on real property increased several times as its value began to be formed from the cadastral value. The article examines the issues of changing the cadastral value of real property objects (land parcels and buildings) in the Samara region as a result of their disputing. The disputing of the cadastral value from which the tax payments are calculated is conducted in a specially created Dispute Commissions or by a court decision. The revision of the cadastral value is carried out on the basis of its market value on the date on which its cadastral value is established. In the Samara region currently the results of the cadastral valuation carried out in 2011-2013 are approved and used for taxation purposes. Analysis of the performed cadastral valuation work of this period showed that it was performed in low quality and the results of established cadastral value do not correspond to the indicators of market value at the date of the assessment. Excess of cadastral value over the market value is the basis for making decision on reducing the cadastral value of the real property. In this way, amount of taxes to be paid to the regional budget by taxpayers, mainly large industrial enterprises located on the territory of the Samara region, is reduced. As a result, the regional budget does not receive part of the planned revenue.

Key words: cadastral value, land stock, leasehold payment, market value, regional budget.

JEL code: H30; K34

Introduction

The payment for land use in Russia is introduced since 1992, after adoption of the Law "On payment for land". This law provided for the following types of payments - land tax and leasehold payment (Law of the Russian Federation ..., 2000). Land tax plays an important role in the tax system, because it is one of the main sources of the formation of the financial base of local governments, and therefore it has significant impact on the socio-economic development of regions (Varlamov A., 2011; Varlamov A., 2014). Land tax, despite a relatively low share in total revenue, relates to local taxes (The Tax Code ..., 2000). The importance of updating of cadastral information for the collection of land payments is shown in publications by different authors (Baumane V., 2016; Varlamov A., 2014; Galchenko S., 2003; Vlasov A., 2013; Koryagina N., 2008; Konstantinova E., 2015; Molzhitova D., 2013; Parsova V., Cahrausa I., 2015; Pomelov A., 2013).

The dynamics of the growth of land payments in the Samara region were analysed in our previous publications (Khasayev, G., 2016; Khasayev, G., 2017). The aim of this article is to analyse the impact of real property market value on formation of cadastral value and, in general, on collection of tax payments and formation of a regional budget.

The Samara region is located in the southeast of European Russia in the middle flow of the Volga. It covers an area of 53.6 thousand km² (0.31 % of the territory of Russia). The Samara region consists of 10 urban districts and 27 municipal districts. On 01.01.2016, the structure of the land stock has the following breakdown: agricultural land - 76 %, forest land - 10 %, urban land - 7 %, industrial, transport and other special purpose land - 1 %, land of specially protected areas - 3 %, land under water - 3 %. According to the status of ownership, the state and municipal property, including undistributed state ownership in land, occupies 2492 thousand hectares. The total ownership of citizens consists of 1933 thousand hectares (Report on the state ..., 2016).

Research results and discussion

In 2014, the Russian Federation adopted amendments to the Tax Code of the Russian Federation, which changed the rules for calculating property taxes. Land parcels, buildings and structures were defined as real property objects, as well as residential and non-residential premises and objects of unfinished construction. Until 2015, the tax on property of physical persons in accordance with the Law "On Real Property Taxes" was calculated on the basis of data on the inventory value of buildings and structures. The normative price was established to the land, but land parcels were not taxed. Later in the regions of the Russian Federation, there were accepted laws on the transition to cadastral value as basis for calculation of real property tax. So, Samara region in 2015 started calculation of the real property tax for physical persons based on the cadastral value of real property objects - land parcels and buildings and structures. At the same time, taxation of real properties on the basis of cadastral value has been introduced gradually, taking into consideration an accumulation of the data in cadastre database. In the Russian Federation, each region by itself determined the list of taxpayers who will be affected by the new taxation order. Annually, the authorized body of executive authority of the Samara region compiles a list of real property objects, which will be taxed according to cadastral value. During last three years, there was a quantitative growth (13 times) of real properties, included in the list, which was aimed to increase the revenue part of consolidated budget of the Samara region.

After changing the system of calculation of real property tax of its cadastral value, the tax increased several times, despite a gradual increase in tax rates: in 2016 - 0.9 %, in 2017 - 1.2 %, in 2018 - 1.5 %, in 2019 - 1.8 %, in 2020 and in subsequent years - 2.0 %. The question of the correctness of determining the cadastral value of land and buildings used for taxation purposes is becoming topical.

Cadastral valuation of urban land is a combination of administrative and technical measures to establish the cadastral value of land parcels and buildings on territory of administrative unit within the boundaries of assessment zones. The valuation is carried out on the basis of:

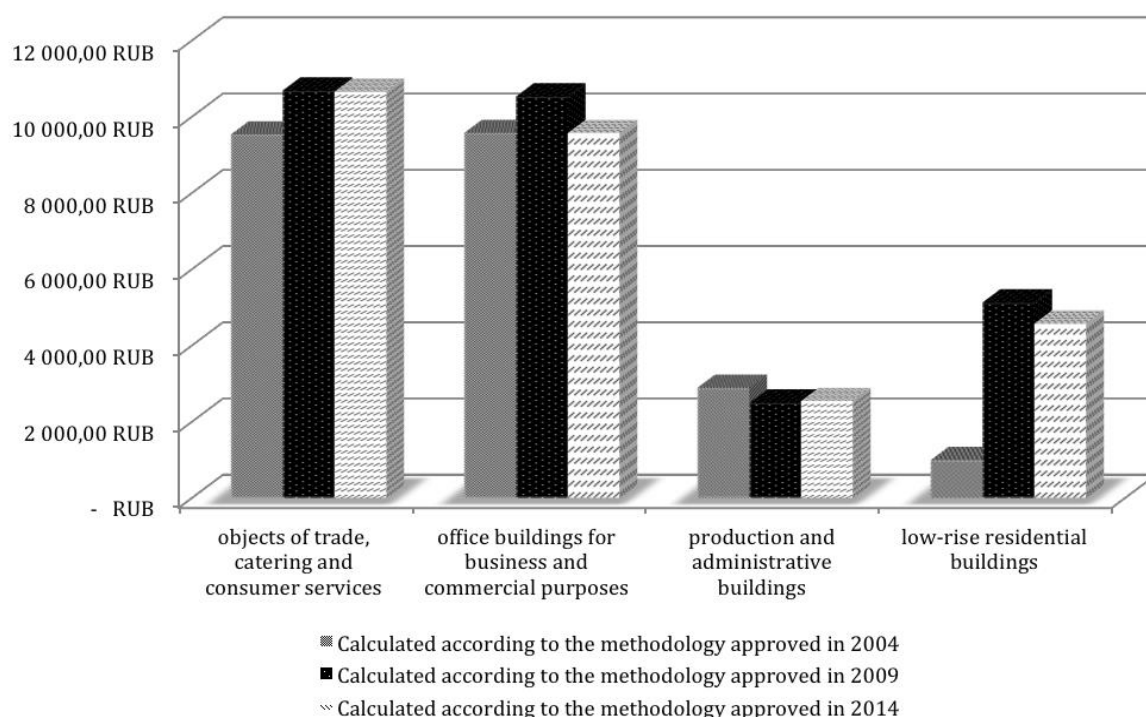
- a comprehensive income;
- comparative and cost approach;
- information on transactions on real property market;
- level of leasehold payments;
- profitability of land use.

There are analysed leasehold-forming factors in the assessment process, including the quality and location of land parcels, improvements made in real property, level of social and engineering infrastructure of the territory etc. Peculiar parameters of land cadastral value obtained as a result of assessment are used to justify property tax rates, privatisation of the land, determination of leasehold payments, concluding inheritance contracts and gift agreements, mortgage operations, setting redemption prices in case of land expropriation, calculation of the starting price in the sale of land at auction etc.

The state cadastral valuation of the land is based on land classification according to the purpose and type of functional use, taking into account homogeneous by purpose the price zoning of the territory, type of functional use and land parcels with analogous cadastral value. The factors of existing buildings and land use, location of linear objects (streets, roads, rivers, waterways,

overpasses, railways, etc.), as well as boundaries of cadastral areas or cadastral blocks are taken into account.

In accordance with the legislation of the Russian Federation, the cadastral value is the market value of real property objects established on a certain date on the basis of adopted techniques using technologies of mass-valuation. Cadastral value fairly objectively reflects the level of prices on the real property market, so the tax based on the market data is fair. According to the current legislation, the state cadastral valuation of land is carried out at least once every 5 years, on the territory of the Samara region it has been already conducted three times. The Figure 1 shows the change of peculiar parameters of land cadastral value on the example of one of the cadastral blocks of the Samara city (Fig. 1).



Source: author's calculations based on data of selected cadastral block in Samara city

Fig. 1. Change of peculiar parameters of land cadastral value in (example of concrete cadastral block in Samara city, 2004 - 2014)

There are analysed changes of peculiar parameters of land cadastral value depending on the type of permitted use - land parcels intended for placement of:

- trade, catering and consumer services facilities;
- office buildings for business and commercial purposes;
- industrial and administrative buildings, industrial structures, communal services, material and technical, food supply, marketing and procurement
- low-rise housing, including individual housing development.

It should be noted, that peculiar parameter of land cadastral value for office buildings for business and commercial purposes is growing noticeably.

Peculiar parameters of land cadastral value in particular cadastral block are used as a base unit. In cadastral blocs, the base values coincide on the principle of similarity and are determined in accordance with methods taking into account all characteristics of the land. Fixation of the specific

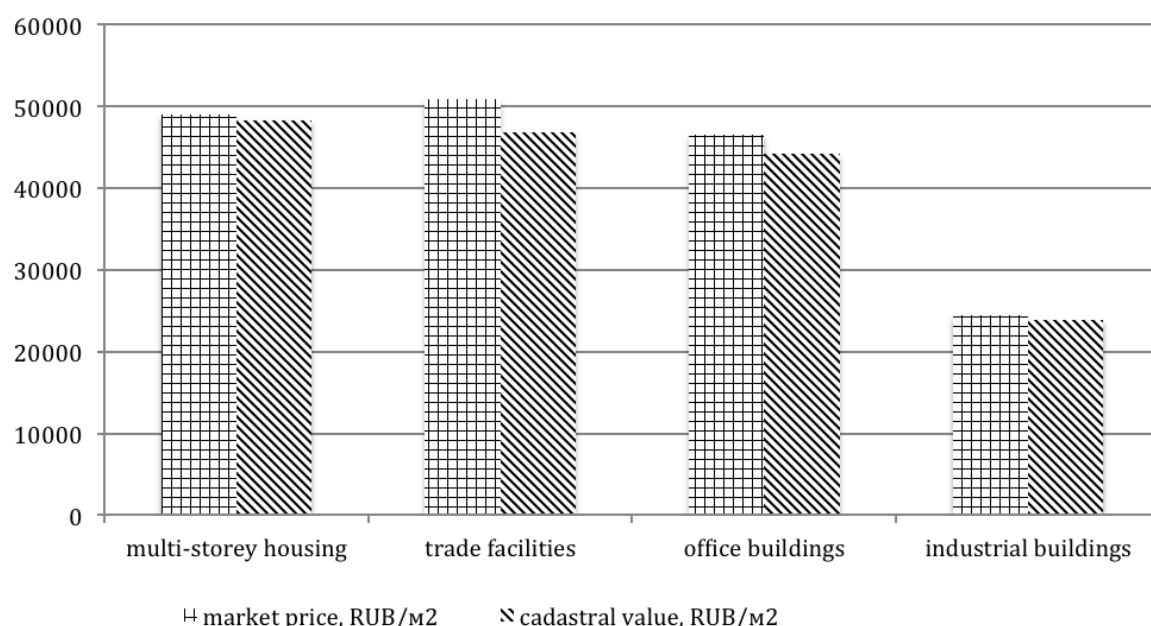
cadastral value index for area of the real property object allows calculating the cadastral value of the real property object.

The current cadastral value of land parcels and buildings was determined as a result of cadastral assessment carried out in 2011-2013. In urban area of Samara region, cadastral valuation of the buildings was carried out in 2011, but cadastral valuation of the land – in 2013. These results were included in the real property state cadastre. These data since 2014 are applied for taxation purposes according to the annually updated list of taxpayers. Non-listed owners still are taxed according to inventory value. The problems of incorrect cadastral valuation in period 2011-2013 are inherent to both land and buildings, and are discussed below.

At present, the problem of insufficient reliability to the results of current cadastral valuation is urgent. In spite of the fact that it was carried out according to the approved cadastral valuation methods, the reference material of analysis of transactions on real property market in calculations was used incorrectly. Not all the necessary factors were taken into account, for example, peculiarities of certain districts, which were located far from the city centre, were not considered. As a result, real properties located in some parts of the city, and used mainly as large industrial enterprises have been significantly overvalued.

According to the current legislation, updating of the cadastral value should be carried out no less than once in 5 years. In 2016, updating was done but its results were not approved and cannot be used for taxation purposes.

The authors have prepared a comparison between current cadastral values and market prices (Fig. 2).



Source: author's calculations based on data of cadastral values and market prices

Fig. 2. Comparison of average cadastral values and market prices in Samara city (2016)

The figure shows that average value of peculiar parameters of cadastral value in Samara city is close to the average market value of objects for various purposes. However, in some cases, discrepancy can be more than five times. For example, a significant discrepancy is noted for the objects of trade and administrative and office facilities.

Comparing the results of market and cadastral values of office and trade facilities, it is evident that in the central urban area the difference between mass-appraisal data is insignificant. However, if we consider similar objects that are located on the urban outskirts, their cadastral value is about 4-5 times higher than market value (Fig. 3).

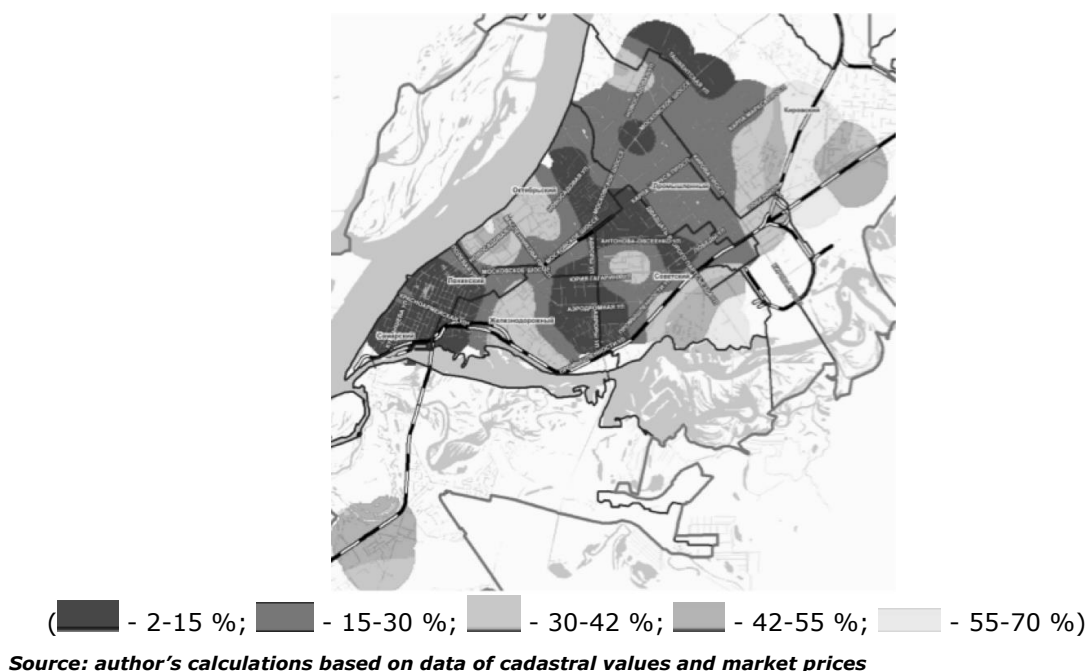


Fig. 3. The difference between the market and cadastral value of the trade facilities, %

However, along with overvalued objects, there are objects that have been undervalued.

The reasons for changing the cadastral or market value can be related to the insufficient consideration of factors related to the location of a particular real property (Fig. 4).

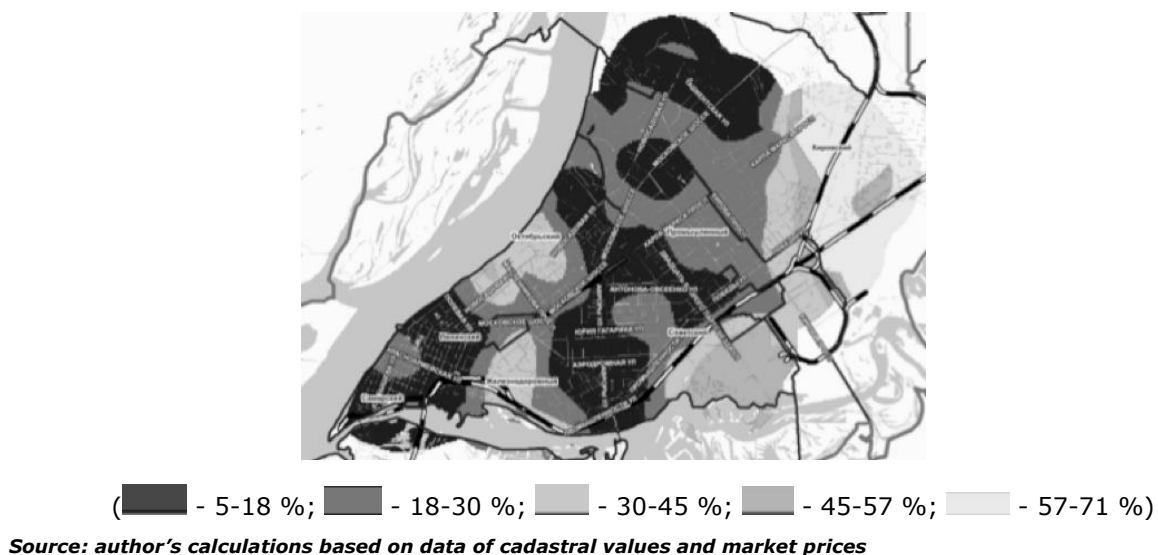


Fig. 4. The difference between the market and cadastral value of the administrative and office facilities, %

The figures show that the areas located far from city business centre were significantly overvalued.

Excessive dissatisfaction for massive part of taxpayers is caused by low quality of cadastral assessments conducted in the region, which is the reason for appeals in commissions and courts.

According to the results of 2014-2016, up to 9 % of all appeals in the Russian Federation relates to the Samara region, which confirms the disproportionate, non-market based taxation. The basis for appeals and revising the cadastral value is its market value on the date, at which cadastral value was established. As evidence of it serves materials from market value databases.

As a rule, Commission reduced the cadastral value of land owned by the largest taxpayers - industrial enterprises located in the majority of urban districts of the Samara region. Because of appeals, the cumulative value of the cadastral value in Samara region decreased by 129 595 644 thousand roubles, including cadastral value of the land by 121 452 890 thousand roubles (about 94 %) and buildings by 8 142 754 thousand roubles (about 6 %).

As a result, revenues to budgets of municipalities decreased. In general, for Samara region volume of outstanding tax payments due to the revision of the cadastral value in 2014-2016 is shown in the table (Table 1). Outstanding incomes in the local municipality budgets are formed from income of land tax, which was calculated at the tax rate of 1.5 %, and of tax payments for buildings, owned by physical persons, which was calculated at the current tax rate of 0.1 %.

Table 1

**Amount of outstanding incomes in the budget of the Samara region
in 2014-2016**

No	The revision of the cadastral value	2014	2015	2016	In total 2014 - 2016
1.	Reduction of cadastral value of the land, RUB	51 221 664	35 140 415	35 090 811	121 452 890
2.	Outstanding income from land tax, calculated at a rate of 1.5 %, RUB	768 325	527 107	526 362	1 821 794
3.	Decrease of cadastral value due to applications of owners – physical persons, RUB	42 930	215 228	967 552	1 225 710
4.	Outstanding income from physical persons land tax, calculated at a rate of 0.1 %, RUB	0	215	967	1 182
	Outstanding income in municipality budgets in total	768 325	527 322	527 329	1 822 976

Source: author's calculations based on reports of the Accounts Chamber of the Samara Region

The total amount of outstanding revenues (real property tax) in the consolidated budget of Samara region due to revised cadastral value by Commissions and in the legal procedure during the period under study makes 1 822 976 thousand roubles, including land tax – 1 821 794 thousand roubles (99 %).

Conclusions, proposals, recommendations

- 1) The impact of real property market to the cadastral value is an important factor, underestimation of which leads to serious consequences.
- 2) Reducing the cadastral value of land and buildings reduces revenues in the municipal budgets through real property tax, which is calculated on the basis of cadastral value.
- 3) The reason for reduced revenues is an imperfection of the mechanism for formation and actualization of information about real property for taxation purposes, lack of responsibility carrying out of cadastral valuation, as well as procedures of quality control.

Bibliography

1. Baumane, V. (2016). Analysis of Impact of Land Quality Assessment in Regions of Latvia for Agriculture Land Value. Proceedings of scientific methodical conference "Baltic Surveying'16" pp. 14-20.
2. Galchenko, S.A. (2003). The Effectiveness of the System of the State Land Cadastre of Different Administrative-territorial Levels. M.: MGIU. 158 p.
3. Khasaev, G.R., Vlasov, A.G., Vasilieva, D.I., Chepurin, E.M., Lobanov, V.P., Volodina, T.V. (2016). Cadastral Valuation of Real Estate in the Socio-economic Development of Region (on the example of Samara region). Land management, cadastre and monitoring of lands. Volume 3 (134). pp. 51-60.
4. Khasaev, G.R., Vlasov, A.G., Vasilieva, D.I. 2017. Modeling and Analysis of the Collection of Land Payments in the Municipal Areas, Depending on the Economic and Geographical Factors // Baltic surveying. International scientific journal. 2017. Volume 6, pp. 71-79.
5. Konstantinova, E.P. (2015) Improving the Efficiency of Land Administration in the Municipalities. Bulletin of Volga region Institute of management. Volume 1. pp. 17-22
6. Koryagina, H.B. (2008) *The Evaluation of the Effectiveness of Land Administration in the Kuznetsk district of the Penza region. Science and technology of APC. Volume 11.* pp. 11-12.
7. Law of the Russian Federation of 11.10.1991 № 1738-1 "On payment for land".
8. Molzhitova, D., Igembaeva, S., Gurklys, V. (2013) Problems and Basic Directions of Perfection of Management of Land Resources of the Republic of Kazakhstan. Proceedings of scientific methodical conference "Baltic Surveying'13". pp. 116-120.
9. Parsova, V., Cahrausa, I. (2015) Prevention of Land Degradation Processes. Baltic Surveying International Scientific Journal. Volume 3. pp. 73-78.
10. Pomelov, A. (2013) Mechanism of Regulation of Land Use in Belarus. Proceedings of scientific methodical conference "Baltic Surveying'13". pp. 126-134.
11. Report on the State and Use of Land in the Samara region in 2015. - 2016. Federal Service of State Registration, Cadastre and Cartography Department of the Federal Service for State Registration, Cadastre and Cartography of the Samara Region. - Samara.
12. The Tax Code of the Russian Federation (part two) of 05.08.2000 No. 117-FZ.
13. Varlamov, A.A. (2011) Organizational and Legal Mechanisms of Land Survey and Cadastral Ensure Agricultural Lands / Sc. red. Varlamov A.A. State University of land management. M., 2011. 208 p.
14. Varlamov, A.A. 2014. System of State and Municipal Management. M.: State University for Land Management. 452 p.
15. Vlasov, A.G., Voronin, V.V., Vasilieva, D.I. (2013) Legislative Framework of Land and Property Complex. Problems of Regional Ecology. Volume 4. pp. 117-121.

EXPORT TARGET COUNTRY SELECTION TOOL FOR MORE COMPETITIVE ENTERPRISES

Megija Krievina ¹, Bc.oec.; Velga Ozolina ², Dr.oec., associate professor
^{1,2} Riga Technical University

Abstract. Export is one of the main drivers of economic development of Latvia. Therefore, facilitation of exports is important, especially in regional level thus ensuring more integrated regional development. As the competition increases globally, identification of export target countries and export market research are becoming increasingly important. The choice of the export target countries is done in several levels – government, associations and enterprises. If the same export target countries are chosen at different levels, enterprises can focus more on increasing competitiveness rather than on marketing activities. The aim of the study is to create a tool for determining the export target countries of Latvia. This implies the choice of the most appropriate indicators to characterise selected criteria, which are obtained from several statistical databases and world-wide assessments like *Doing Business*, *Worldwide Governance Indicators* and others. The elaborated export target country selection tool comprises data of 2016 for 240 countries. All the initial data are first ranked and then consolidated in 10 criteria, which are used for final ranking of all the countries. The representative of the Ministry of Economics found the tool useful. It is best suited for the initial selection of export target countries, which then can be analysed more thoroughly. The use of the tool by export authorities can ensure more qualitative cooperation, help to avoid duplication of information and plan international relations and export facilitation activities more efficiently thus ensuring more advantages to enterprises. The tool can be extended also for use by enterprises.

Key words: export target countries, target countries selection tool, selection criteria, competitive enterprises.

JEL code : F10, F13, F14, F60

Introduction

Latvia economy has undergone various changes over the past six years, as a slow transition in economic development is taking place - from rapid decision-making, to a sustainable development model, in which the main driving force is exports and the ability to compete in both internal and external markets. Export is one of the most important pillars of the economic growth for an open economy like Latvia (Broocks & Van Biesebroeck, 2017). Moreover, it is greatly influenced by the relations among the major economies like the EU and Russia (Supe & Jurgelane, 2017). Therefore, export facilitation policies and tools are essential for economic development of Latvia.

One aspect of the economic development is regional development. Overall development of the economy is not enough, it is important also to ensure the integrated economic development, which has become a global issue (Pike et al., 2017). It is evident that regions with higher economic activity level develop faster (Stuetzer et al., 2017). Thus, also export activities have to be facilitated in regions as well. Development of information and communication technologies has made this task easier (Portugal-Perez & Wilson, 2012); however, enterprises still need support from the government institutions both in terms of financial and non-financial help.

Export development relies on enterprises, which increase their export activities, enterprises, which decide to enter new export markets and enterprises, which begin their export activities. Human capital, organizational capital, technological capital, and social capital is important in all of these cases, especially for non-exporters (Michael et al., 2016), which ensures export ability of enterprises. Among other things, ability to choose the right export target country is essential to ensure that the product aimed for exports is appropriate. Moreover, export marketing strategy is the key determinant of exporters success (Morgan et al., 2012) and marketing capabilities

¹Corresponding author. Tel. +37129409742. E-mail address: megija.krievina@gmail.com

²Corresponding author. Tel. +371 26521370. E-mail address: velga.ozolina@rtu.lv

influence export performance (Tan & Sousa, 2015) especially in case of low-cost and differentiation competitiveness advantage.

A key element in export marketing strategy is a correct selection of export target country (Utama et al., 2017). Moreover, such a country should be selected, which gives the best results (Dzemydaite, 2017). Coherent export target countries selection at enterprise and government level can facilitate exports and regional development providing support for enterprise marketing activities as well. If institutions responsible for export facilitation strengthen relationships with the common export target countries, enterprises do not have to pay that much attention to the origin of their production but to the production itself, which may enhance their competitiveness. Thus, private and public sector can cooperate to ensure the targeted approach to export facilitation activities (Molander et al., 2017), including cooperation to select export target countries.

At present, Ministry of Economics of the Republic of Latvia has defined three criteria for export target countries' selection in the Export Guidelines (Cabinet of Ministers ..., 2013). These are: economically stable and developed countries; geographical proximity; the market demand corresponds to the possibilities offered by Latvia. These criteria are not enough to determine the most appropriate foreign trade partners; therefore, it is necessary to increase the number of criteria. Analysis of export strategies of the Latvian export authorities (Ministry of Economics, Ministry of Foreign Affairs, Investment and Development Agency of Latvia (LIAA), their Social partner – Employers' Confederation of Latvia (LDDK) – and Cooperation partner – the Latvian Chamber of Commerce and Industry (LCCI)) as well enterprise survey and interviews with the export authorities showed that several important criteria have to be considered when choosing export target countries, namely: important export market for Latvia; economic indicators; quality of infrastructure; stable and secure banking and financial markets; national security; political stability; perception of corruption; geographical proximity; membership of international organizations; import volume (Krievina & Ozolina, 2017). The next step is to choose a set of indicators and join them in one common tool for quantitative analysis of these criteria. According to Hisrich (2016), five steps should be taken to do that: 1) choice of appropriate indicators; 2) collection of data, which are then transformed into comparable indicators; 3) establishment of weights for each indicator, 4) analysis of the data; 5) selection of an appropriate market from the list. The aim of the study is to create a tool for determining the export target countries of Latvia. The established tool would improve the existing cooperation between the responsible export authorities and facilitate the implementation of targeted export measures in selected countries as well as help enterprises identify Latvia's export target countries. Tasks of the research are to identify the most appropriate indicators to characterise the previously defined criteria for choosing export target countries, collect the data and transform them into comparable units, combine them in a common tool and test, if the representative of the Ministry of Economics find the tool usable and useful.

1. Methodology

Before choosing the most appropriate indicators to characterise the selected criteria, the authors decided to obtain all the data from publicly available, trusted, official, open data and statistics sites like Central Statistical Bureau (CSB) of Latvia (CSB, 2017), Bank of Latvia (Bank of Latvia, 2017), The World Bank (The World Bank, 2017a). This implies also the use of generally known indicators or elements from already existing world-wide assessments such as Doing

¹Corresponding author. Tel. +37129409742. E-mail address: megija.krievina@gmail.com
²Corresponding author. Tel. +371 26521370. E-mail address: velga.ozolina@rtu.lv

Business (The World Bank, 2017b), Worldwide Governance Indicators (Kaufmann et al., 2010), Global Competitiveness Report (World Economic Forum, 2017) etc. Moreover, some criteria may have several indicators used for its characterisation as several criteria like economic indicators, quality of infrastructure and others are versatile. On the other hand, it was decided not to use more than five indicators for each criterion. It should also be noted that both statistical data and the results of expert/business surveys were found to be useful.

As most of the criteria consist of different indicators, it is necessary to compile statistics and convert them into comparable metrics to ensure that the export tool functions properly. As the chosen indicators can be expressed in different units of measure - %, million, km etc. - the authors decided to rank the obtained data. This means that each country for each component obtains a rank according to the results. In the next step, all the components of a criterion are summed up and a new rank is made.

The final step is a summary of all the criteria in a common tool. The main part of the tool can be used in a simple average rank mode, when all the criteria are considered to be equally important, and in the weighted average mode, when it is possible to show, which criterion is more important (the value of the weight is larger than 1) or less important (the value of the weight is smaller than 1).

The values of the indicators were ranked and compiled for 240 countries. Data of 2016 were used in the research as data of 2017 had not been published yet.

2. Components of the criteria for export target country selection

All the components of the chosen criteria are summarized in Table 1, where also data sources are given. The first criterion is important export market for Latvia. It can be evaluated according to the country's activity in foreign markets that is the volume or the value of export. Therefore, the values of Latvian exports of goods and services were chosen.

The second criterion is economic indicators. As there is a huge number of different economic indicators, the authors chose five components in order to cover different aspects of the economy. These are GDP per capita, inflation rate, innovation, taxes and unemployment rate.

The third criterion is the quality of infrastructure. As the proposed tool is directly related to the export activities, this criterion should include the assessment of the part of infrastructure related to the exporting process, which is mainly transport and communication infrastructure. There are several transport modes, which not only provide transportation options for exports, but also for meetings. Therefore, chosen indicators are related to four kinds of transport infrastructure and electricity and communication. As the comparable data on quality of infrastructure cannot be obtained in databases, results of the Annual World Economic Forum polls were used, which summarize the opinions of experts in the scale from 1 to 7 (the best evaluation).

The fourth criterion is stable and secure banking and financial markets. There are no statistical data available, which characterise stability and security of banking and financial market, therefore experts' assessment is considered, using elements of the Global Competitiveness Report.

The fifth criterion is national security. As the most appropriate political stability and absence of violence/terrorism indicator from the Worldwide Governance Indicators was chosen, which summarizes views expressed in a large-scale survey.

Table 1

Components of export target country selection tool

No.	Criteria	Indicator, unit of measurement, data source
1.	Important export market for Latvia	Components: 1. Total value of Latvian exports of goods [M EUR] (CSB, 2017). 2. Total value of Latvian exports of services [M EUR] (Bank of Latvia, 2017).
2.	Economic indicators	Components: 1. GDP per capita [M EUR] (The World Bank, 2017a); 2. Inflation [% against the previous year] (The Heritage Foundation, 2017); 3. Innovation - a criterion which is composed of multiple, related components: Made of two sub-indices - a source of innovation sub-criterion and sub-criterion of innovation results. The first sub-index has five pillars - (1) institutions, (2) human capital and research, (3) infrastructure, (4) complexity of the market, (5) complexity of enterprises. The second sub-index has two pillars - (6) the contribution of knowledge and technology, (7) creativity. [quantitative assessment (1-100)] (Cornell University et al., 2016); 4. Taxes - Taxes and compulsory contributions that a medium-sized enterprise has to pay in a given year, as well as administrative burdens. Combination and assessment of four sub-criteria - time, total tax rate, amount and time of submission of documents, amount of taxes [quantitative assessment (1-190)] (The World Bank, 2017b); 5. Unemployment rate [% of total workforce] (The World Bank, 2017a).
3.	Quality of infrastructure	Components: 1. Road quality ; 2. Rail quality ; 3. Air traffic quality ; 4. Port and water quality ; 5. Electricity and communication quality . Overall evaluation of the system, availability [expert (qualitative) assessment, from 1-7] (World Economic Forum, 2017).
4.	Stable and secure banking and financial markets	Components: 1. Financial market development : access to financial services and risk capital, financing through the local capital market; 2. Bank stability: trust and stability in banks [expert (qualitative) assessment, from 1-7] (World Economic Forum, 2017).
5.	National security	Components: Political stability and absence of violence/terrorism [expert (qualitative) assessment (1-100)] (The World Bank Group, 2017).
6.	Political stability	Components: 1. Voice and responsibility : the citizen of the country is able to participate in the government's choice - 7 indicators (democracy index, freedom of the press, political rights, transparent government policy making etc.) and 12 additional sources of non-governmental organizations (trust in parliament, political participation, political, social integration, elections etc.); 2. Regulatory framework : the notion of government's ability to formulate and implement policies and a provision that allows the development of the private sector to be promoted - 6 characteristics (price control, government regulation, impact of tax policy etc.) and 8 additional sources of non-governmental organizations (trade policy, regional integration, the regulatory environment for business etc.); 3. Effectiveness of the government : an idea of the quality of public services, the quality of the civil service and its independence from political pressure; trust in the commitment of the government to adhere to the promised policy - 6 characteristic resources (infrastructure, bureaucracy, coverage areas - schools, health, transport etc.) and 10 sources of non-governmental organizations quality of administration, health, education, effective revenue mobilization etc.); 4. Rule of law : trust in rules, performance of contracts, property rights, police and judicial quality - 8 characterizing resources (judicial independence, protection of intellectual property, effective legal regulatory system, etc.) and 14 additional sources of non-governmental organizations (trust in the justice system, crime, rights, gender etc.). [expert (qualitative) assessment (1-100)] (The World Bank Group, 2017).
7.	Perception of corruption	Component: Corruption Perceptions Index [Expert assessment of the country or territory where the result indicates the level of corruption in the public sector marked 0 (very corrupt) to 100 (very clean)] (Transparency International, 2017).
8.	Geographical proximity	Component: Geographic distance [Distance measured in straight line, km.] (Distance Calculator, 2017).
9.	Membership of international organizations	Components: Membership in the organization - 1. OECD [Is there a membership in the organization] (OECD, 2018); 2. WTO [Is there a membership in the organization] (World Trade Organization, 2018); 3. EU [Is there a membership in the organization] (European Union, 2018); 4. Double Taxation and Anti-Fraud Agreements with Latvia [Is there an agreement concluded] (The Ministry of Finance, 2017).
10.	Import Volume	Components: 1. World Import value of agricultural and food products ; 2. Chemistry ; 3. Pharmacy ; 4. Metalworking ; 5. Mechanical engineering and transport ; 6. Electronic data processing ; 7. Telecommunication equipment ; 8. Textiles . [MEUR] (World Trade Organization, 2017).

Source: author's compilation

The sixth criterion is political stability, which again can hardly be characterised by the statistical data. Political stability is the average duration of one government in parliament, as well as public

¹Corresponding author. Tel. +37129409742. E-mail address: megija.krievina@gmail.com

²Corresponding author. Tel. +371 26521370. E-mail address: velga.ozolina@rtu.lv

satisfaction with ruling parties, party system, activity, which implies that there are revolutionary or arbitrary ideas (LIAA, 2018). Accordingly, four of the Worldwide Governance Indicators were chosen, which are essential to ensure the political stability.

The seventh criterion is perception of corruption. As the name indicates, a strictly qualitative indicator is needed, therefore Corruption Perceptions Index was chosen as the most appropriate.

The eighth criterion is geographical proximity. As there are many ways to characterise the distance between two countries, each of them having their pros and cons, the authors chose one of the distance calculators available online, which is easy to use and provides information of distance from the air and road perspectives. Here the air distance was chosen, because many countries cannot be accessed from Latvia by road.

The ninth criterion is membership of international organizations. As the most important organizations for Latvia OECD, WTO and the EU were chosen. The OECD has 35 member states, including Latvia, and is a unique forum providing representatives of the member states with an opportunity to effectively address issues of interest to them based on the experience of individual countries and to coordinate the development of national and international policies (OECD, 2018). WTO currently has 164 member states, but in the process of accession are 19. The main objective of this international organization is to facilitate trade based on equal conditions, also taking into account the capacities of developing countries (World Trade Organization, 2018). The EU consists of 28 member countries (European Union, 2018). Additionally, this criterion includes the double taxation and anti-fraud agreements with Latvia, that is, if such agreements exist or not. Such list is available in the Ministry of Finance of the Republic of Latvia (The Ministry of Finance, 2017), which states that to date Latvia has concluded with 73 countries.

The tenth criterion is import volume, which basically shows the demand for particular imported products in a particular country. This criterion is important, if the export target countries are selected for particular enterprises or industries and thus is an addition to the tool.

3. A Tool for determining the criteria for exporting countries selection

The overall picture of the Latvian export target countries' tool showing top 20 export target countries of Latvia is given in Table 2. In the original version, country ranks are displayed in colour – from the green tone (top position), yellow (middle ranking) to red (the lowest point), which makes it possible to understand the positions of each country more clearly. In addition, this tool also shows Latvia, therefore the users are able to understand where our country is positioned globally.

In Table 2, all the criteria are considered as equally important (the values of the weights in the second row are equal to 1). You can see that eight criteria form the basis of the overall ranking and importance of each of these criteria can be changed using weights as stated in the previous section. Two of the criteria are additional ones – membership in organisations and import volumes, which provide more information about the particular countries, but are not essential for everyone. Moreover, it is possible to use the filter function, which allows filtering the membership in particular organisations or particular countries of interest. In addition, it is possible to rank all the countries according only to one criterion.

¹Corresponding author. Tel. +37129409742. E-mail address: megija.krievina@gmail.com
²Corresponding author. Tel. +371 26521370. E-mail address: velga.ozolina@rtu.lv

Table 2

Export target country selection tool

Np.	Country	EU	OECD	WTO	DTA	WEIGHT								Important export market for Latvia	Economic indicators	Quality of infrastructure	Stable and secure banking and financial markets	National stability	Political stability	Perception of corruption	Geographical proximity	World import value of agricultural and food products	Chemistry	Pharmacy	Metalworking	Mechanical engineering and transport	Electronic data processing	Telecommunication equipment	Textiles
						1	1	1	1	1	1	1	1																
						1	1	1	1	1	1	1	1																
1	Switzerland	X	X	X	X	9	1	9	13	10	4	7	28	31	15	8	107	30	24	33	17	44	41	40	50	42	41	47	38
2	Finland	X	X	X	X	12	22	7	7	25	3	2	6	40	47	46	45	35	37	39	28	23	29	27	34	29	25	23	21
3	Norway	X	X	X	X	10	3	27	6	21	5	6	12	6	7	9	135	10	4	4	9	71	72	79	108	60	50	40	62
4	Sweden	X	X	X	X	6	6	21	17	35	2	3	5	28	35	26	39	37	32	38	20	3	3	2	2	3	5	5	2
5	The Netherlands	X	X	X	X	11	8	3	41	41	7	5	20	26	24	14	27	28	31	28	16	5	6	4	1	5	6	8	4
6	Luxembourg	X	X	X	X	47	12	23	9	6	9	11	23	80	84	84	89	72	79	61	76	37	31	23	22	26	12	24	29
7	Denmark	X	X	X	X	8	4	14	54	46	6	1	9	9	4	3	14	16	23	31	12	11	12	12	8	11	13	10	
8	Germany	X	X	X	X	5	7	5	38	55	12	12	14	7	5	6	4	1	5	6	8	4	7	5	6	10	11	5	
9	Austria	X	X	X	X	27	13	24	43	19	14	17	18	117	115	121	10	104	86	108	90	121	114	113	139	94	106	124	97
10	United Kingdom	X	X	X	X	4	11	12	50	70	10	10	33	16	25	10	47	64	17	15	22	30	20	34	36	12	9	16	27
11	Estonia	X	X	X	X	2	21	43	28	62	24	26	2	11	12	12	12	8	11	13	10	7	5	5	6	6	10	11	5
12	Czech Republic	X	X	X	X	16	18	35	26	36	34	37	11	16	25	10	47	64	17	15	22	11	12	12	12	8	11	13	10
13	Belgium	X	X	X	X	19	25	10	47	64	17	15	22	11	12	12	12	8	11	13	10	7	5	5	6	6	10	11	5
14	Canada	X	X	X	X	42	23	16	5	13	8	9	123	117	115	121	10	104	86	108	90	121	114	113	139	94	106	124	97
15	France	X	X	X	X	13	26	11	32	80	25	25	40	7	5	5	6	6	10	11	5	117	115	121	10	104	86	108	90
16	Iceland	X	X	X	X	56	14	13	84	11	16	14	49	121	114	113	139	94	106	124	97	16	25	37	42	4	3	2	8
17	Malta	X	X	X	X	40	30	30	14	24	31	39	50	57	57	58	73	65	56	66	59	57	57	58	73	65	56	66	59
18	Hong Kong	X	X	X	X	34	15	1	2	31	18	18	142	30	20	34	36	12	9	16	27	30	20	34	36	12	9	16	27
19	Lithuania	X	X	X	X	1	36	41	70	57	32	34	3	57	57	58	73	65	56	66	59	57	57	58	73	65	56	66	59
20	Singapore	X	X	X	X	39	2	2	1	14	27	8	182	30	20	34	36	12	9	16	27	30	20	34	36	12	9	16	27

Source: developed by authors.

It needs to be emphasized that, by far, there is no instrument for identification of export target countries in Latvia. In order to understand, how useful is the tool in practice, the tool was tested by the Deputy Director of the EU and Foreign Economic Relations Department of the Ministry of Economics, who co-ordinates, manages and oversees the development and implementation of foreign economic relations policy on a daily basis. She explained that the tool is easy to read, use and it contains the necessary information to identify the most important target countries at the first stage of export target countries' selection process, taking into account different criteria. This tool could save time, which is spent for exploring information on different spheres for each individual country - infrastructure, political stability, economics etc. A positive assessment is that the five criteria are made up of several components, thus providing more comprehensive information to the institution that will use it. Also the introduction of weights is evaluated positively. The tool is assessed as valuable because the countries that are presented in the tool include also countries, with which a bilateral economic cooperation agreement is not concluded yet and it provides a number of options for future cooperation. This instrument could also improve inter-institutional cooperation, as it would be a common source of information for research of potential markets for export or export activities.

The tool for determining the criteria for Latvian export target countries should be a part of a common mechanism, which involves the Latvian export authorities – Ministry of Economics, Ministry of Foreign Affairs and LIAA and social and cooperation partners – LDDK and LCCI. This means that the responsible institution implements activities such as maintenance, renewal, and retrieval of data annually to update this tool and provide the tool to the other parties involved to use it. In this way the tool can prevent duplication of information, more precisely identifying Latvia's export target countries in the framework of the single system, thus making the export planning process more efficient and useful also to exporters, if they are willing to be active and participate in the process as members of LDDK and/or LCCI. In that case, enterprises can influence the export policy as well as international relations of Latvia by helping to choose countries, which

¹Corresponding author. Tel. +37129409742. E-mail address: megija.krievina@gmail.com

²Corresponding author. Tel. +371 26521370. E-mail address: velga.ozolina@rtu.lv

are more suitable for macro marketing activities and for closer cooperation, including new trade or anti-fraud agreements. In such a way it is possible to eliminate some obstacles for exporting thus making exporters more competitive.

The tool for defining the criteria for exporting target countries can also be adapted for use in companies, including enterprises in regions. In this case the tool should be adapted, changing or adding new criteria, including those which are essential for particular industries or groups of enterprises, for example, micro enterprises.

In the long run, this tool can be built not only for one year, but for a period of several years to see the changes and trends thus making the tool even more useful. Moreover, it could be developed as an online platform (virtual tool) to facilitate access to the tool and replenishment of information.

The authors point out that this tool is the first step in exploring the country of destination of the export - selecting a country from a common ranking can then be followed by an in-depth analysis of the relevant market. Such a study would provide a more accurate ground for export-related decisions.

Conclusions

- 1) A complex approach has to be used in the process of export target country selection as there are many important criteria that have to be taken into consideration. If the selection process involves parties from different levels, that is, government, associations and enterprises, it is possible to reach the synergy effect, which means that enterprises can focus more on competitiveness issues.
- 2) The export target country selection tool developed by the authors evaluates 10 important criteria from several indicators ranging from statistical data to generally known assessments like Doing Business, which ensures that different important aspects are considered, when making decisions about international relations and export promotion.
- 3) The tool for determining export target countries is a comprehensive yet easy-to-use instrument for the initial selection of export target countries, which afterwards can be analysed more thoroughly. This instrument is designed to facilitate and improve the work of the Latvian authorities responsible for export development and their partners in order to achieve more targeted approach to potential export countries selection process followed by more appropriate activities in cooperation with these countries.
- 4) Only one institution, the Ministry of Economics, should be responsible for updating the tool, however it should be used by all the involved parties to avoid duplication of information and reduce time spent on gathering information. In the long run, the tool should be developed as an online platform thus insuring even more flexible use of this instrument.
- 5) The tool can be adjusted for use by companies, which would be especially useful for enterprises in regions, where availability of qualified workforce or consultation services is limited.

Acknowledgements

The paper was supported by the National Research Program of the Republic of Latvia 5.2. "Economic Transformation, Smart Growth, Governance and Legal Framework for the State and Society for Sustainable Development – a New Approach to the Creation of a Sustainable Learning Community (EKOSOC-LV)".

¹Corresponding author. Tel. +37129409742. E-mail address: megija.krievina@gmail.com
²Corresponding author. Tel. +371 26521370. E-mail address: velga.ozolina@rtu.lv

Bibliography

1. Bank of Latvia, (2017). *Statistical Database*. Retrieved: <https://statdb.bank.lv/LB/Data.aspx?id=202>. Access: 30.05.2017.
2. Broocks, A., Van Biesebroeck, J., (2017). The Impact of Export Promotion on Export Market Entry. *Journal of International Economics*, 107, pp. 19–33.
3. Cabinet of Ministers of the Republic of Latvia, (2013). Par Nacionalas industriālas politikas pamatnostādņem 2014.–2020.gadam [National Industrial Policy Guidelines 2014-2020.], Cabinet of Ministers Regulations of the Republic of Latvia. Retrieved: <https://m.likumi.lv/doc.php?id=257875>. Access: 30.03.2017.
4. Cornell University, INSEAD & WIPO, (2016). The Global Innovation Index 2016 Winning with Global Innovation. Retrieved: http://www.codespring.ro/wp-content/uploads/2012/11/GII-2012_Cover.pdf. Access: 30.05.2017.
5. CSB, (2017). *Database*. Retrieved: <http://www.csb.gov.lv/> Access: 30.05.2017.
6. *Distance Calculator*, (2017). Retrieved: <https://www.distancecalculator.net/> Access: 30.05.2017.
7. Dzemydaite, G., (2017). External Influences for Balance of Trade in Small and Open Economies. *Journal of Applied Economic Sciences*, 12(2), pp. 402–412
8. European Union, (2018). *About the EU*. Retrieved: https://europa.eu/european-union/about-eu/countries_en Access: 10.01.2018.
9. Hisrich, R.D., (2016). *International Entrepreneurship: Starting, Developing, and Managing a Global Venture* 3rd ed., SAGE Publications, Inc., p. 440
10. Kaufmann, D., Kraay, A. & Mastruzzi, M., (2010). *The Worldwide Governance Indicators: Methodology and Analytical Issues*. World Bank Policy Research Working Paper No. 5430. Retrieved: <https://ssrn.com/abstract=1682130> Access: 30.05.2017.
11. Krievina, M. & Ozolina, V., (2017). Criteria for Selection of the Export Target Countries. *Globalization and Its Socio-Economic Consequences*, Proceedings of the 17th International Scientific Conference (Part III), Slovenia, 4th – 5th October, 2017. University of Zilina, The Faculty of Operation and Economics of Transport and Communications, Department of Economics, pp. 1186–1193.
12. LIAA, (2018). *Macroeconomic and Political Stability*. Retrieved: <http://www.liaa.gov.lv/en/invest-latvia/why-latvia/macroeconomic-and-political-stability>. Access: 30.01.2018.
13. Michael, M.S., Saban, G. & Abdurahman, A.Z.A., (2016). Factors Affecting Non-Exporting Small and Medium Enterprises' Intention to Export: Resource Based Approach. *Procedia - Social and Behavioral Sciences*, 224, pp. 199–206.
14. Molander, S., Felleson, M. & Friman, M., (2017). Market Orientation in Public Service—A Comparison between Buyers and Providers. *Journal of Nonprofit and Public Sector Marketing*, pp. 1–21.
15. Morgan, N.A., Katsikeas, C.S. & Vorhies, D.W., (2012). Export Marketing Strategy Implementation, Export Marketing Capabilities, and Export Venture Performance. *Journal of the Academy of Marketing Science*, 40(2), pp. 271–289.
16. OECD, (2018). *About the OECD*. Retrieved: <http://www.oecd.org/about/>. Access: 10.01.2018.
17. Pike, A., Rodriguez-Pose, A. & Tomaney, J., (2017). Shifting Horizons in Local and Regional Development. *Regional Studies*, 51(1), pp. 46–57.
18. Portugal-Perez, A. & Wilson, J.S., (2012). Export Performance and Trade Facilitation Reform: Hard and Soft Infrastructure. *World Development*, 40(7), pp. 1295–1307.
19. Stuetzer, M. et al., (2017). Entrepreneurship Culture, Knowledge Spillovers and the Growth of Regions. *Regional Studies*, pp. 1–11.
20. Supe, L., Jurgelane, I., (2017). Development Trends in the National Economy Sectors in the Baltic States in 2005-2015. *Research for Rural Development 2017" Annual 23rd International Scientific Conference Proceedings*, Volume 2, 17 - 19 May, 2017. – pp. 104–111.
21. Tan, Q. & Sousa, C.M.P., (2015). Leveraging Marketing Capabilities into Competitive Advantage and Export Performance. *International Marketing Review*, 32(1), pp. 78–102.
22. The Heritage Foundation, (2017). 2017 Index of Economic Freedom. Retrieved: <https://www.heritage.org/index/explore?view=by-region-country-year>. Access: 30.05.2017.
23. The Ministry of Finance, (2017). Latvijas Republikas konvenciju par nodokļu dubultas uzlikšanas un nodokļu nemaksāšanas noversanu statuss - Latvijas Republikas Finanšu ministrija. Retrieved: http://www.fm.gov.lv/lv/sadalas/nodoklu_politika/nodoklu_konvencijas/konvenciju_statuss/. Access: 30.05.2017.
24. The World Bank, (2017a). *DataBank*. Retrieved: <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>. Access: 31.05.2017.
25. The World Bank, (2017b). *Doing Business*. Retrieved: <http://www.doingbusiness.org/>. Access: 31.05.2017.
26. The World Bank Group, (2017). *The Worldwide Governance Indicators WGI 2017 Interactive Dataset*. Retrieved: <http://info.worldbank.org/governance/wgi/#reports> Access: 31.05.2017.
27. Transparency International, (2017). Corruption Perceptions Index 2015. Retrieved: <https://www.transparency.org/cpi2015#results-table> Access: 30.05.2017.
28. Utama, W.P. et al., (2017). Making International Expansion Decision for Construction Enterprises with Multiple Criteria: a Literature Review Approach. *International Journal of Construction Management*, pp. 1–11.

¹Corresponding author. Tel. +37129409742. E-mail address: megija.krievina@gmail.com

²Corresponding author. Tel. +371 26521370. E-mail address: velga.ozolina@rtu.lv

29. World Economic Forum, (2017). *The Global Competitiveness Report 2017-2018*. Retrieved:
<https://www.weforum.org/reports/the-global-competitiveness-report-2017-2018>. Access: 28.05.2017.
30. World Trade Organization, (2018). *Members and Observers*. Retrieved:
https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm. Access: 30.01.2018.
31. World Trade Organization, (2017). *Statistics Database*. Retrieved:
<http://stat.wto.org/StatisticalProgram/WSDBStatProgramHome.aspx?Language=E>. Access: 28.05.2017.

GOVERNMENT-CITIZEN COMMUNICATION IN RURAL MUNICIPALITIES IN LATVIA

Zenija Kruzmetra¹, Dr.geogr., assist.prof.; Dina Bite², Dr.sc.soc., assoc.prof.;
Ginta Kronberga³, Dr.sc.soc., assist.prof.

^{1, 2, 3} Latvia University of Life Sciences and Technologies

Abstract. Government-citizen communication is a prerequisite for the place development and sustainable development. The latest communication theories emphasize the responsibility of local authorities to build communication with local people, to develop safe and sustainable communities, to provide services and infrastructure, to develop horizontal communication networks to promote community development and trust and reduce social distances between social agents. The aim of the article is to explore government-citizen communication in rural municipalities of Latvia from the viewpoint of local citizens. Tasks are related to describing of theoretical statements concerning governance-citizen communication in the light of sustainable development and analysing empirical information. Results of the research indicate average estimation of the communication with local government and the significance of informal communication networks in rural communities. Though municipalities in rural areas use different communication channels, including modern solutions, the situation analysis reveals a certain discrepancy with theoretical concepts and other research results, because rural municipalities in Latvia are more characterized by a "top-down" communication model, which is often based on power relations, is one-sided and formal. Government-citizen communication in rural municipalities of Latvia is regarded as an up-to-date, but insufficiently identified and evaluated tool for the development of citizens' involvement and place development processes. Therefore, further investigation and exploring are necessary to improve understanding of government – citizen communication and establishing of horizontal cooperation ties.

Key words: governance, communication, sustainable place development.

JEL code: R50

Introduction

The idea of sustainable development, both globally and locally, remains an important theoretical paradigm for research into the development of society. Participation, stakeholders' approach to policy making and its implementation, the use of public and private resources as well as the use of general knowledge and skills in the development of society are prerequisites for sustainable development. Communication and information play an important role since, in the context of sustainable development, it ensures mutual interaction between different development factors, improves the exchange of knowledge and information and, in general, facilitates the involvement of stakeholders (Servaes, 2013).

In the framework of sustainable development, we need to improve communication and links between different social agents: policy makers, representatives of civil society (e.g. representatives of the NGO sector, representatives of formal and informal social movements), local people, academics, communication professionals, and technical field specific professionals. In today's society, as Rico Lie and Jan Servaes reveal, "there is a demand for building knowledge and communication networks and to attach importance to stakeholder interactions and knowledge systems approaches" (Lie, Servaes, 2015).

There are different theoretical approaches that define communication, but they all incorporate the following basic elements of communication: 1) the originator, 2) the recipient, 3) the type of communication, 4) the message and 5) the effect (Bruce, Yearley, 2016). Communication can be viewed as an interactive and open process between different social agents, but the information is linked to certain causal relationships: using messages (cause) to influence or change the recipient's attitude or behavior (effect). Communication is a comprehensive concept, because it involves the

¹Corresponding author. Tel.: +371 26586649, E-mail address: Zenija.Kruzmetra@llu.lv

²Corresponding author. Tel. +371 29729356, E-mail address: Dina.Bite@llu.lv

³Corresponding author. Tel. +371 29390994, E-mail address: Ginta.Kronberga@llu.lv

interaction of people - interpersonal relationships, as well as one-way (linear flow) and two-way flow, or dialogue. The communication process refers to a circular communicative flow (dialogue) in which specific results is not necessarily defined in advance (Mefalopulos, 2008).

There are various communication theories - "diffusion of innovations theory", "extension approaches", or "two step flow", which are quite similar to the theory of modernization, which points out elitist, as well as vertical and downward orientation of the diffusion model. Communication studies reveal that although community groups can obtain sufficiently comprehensive information from impersonal sources such as radio, television and the Internet, this information is relatively modest in influencing their behavioral changes. Similar studies allow us to conclude that information is extracted directly from interpersonal contacts and from mass communication based on them. At the lowest (local) level, before people can consider, discuss and solve problems, they must be aware of the facts and relevant information provided by various media at the national, regional and local levels (Servaes, Malikha, 2005).

Local authorities as communication agents are responsible for involving stakeholders in communication, all the more so nowadays, when digital media offer great opportunities for interconnection and dialogue with local people. For local people, the municipality can effectively provide quality services through e-government tools that allow feedback and dialogue. Various, relatively easy-to-use platforms allow citizens to access and use information, receive services, keep up-to-date on a regular basis. In view of these aspects, rural municipalities are faced with a range of challenges to provide citizens with growing demand concerning e-management and the quality of services through online tools and two-way flow of information with limited resources. However, despite the fact that ensuring good governance is a primary task for municipalities, for in order to build a safe and sustainable community of daily life, municipalities must constantly maintain and improve their services, infrastructure and knowledge of local people's needs (Kagume, 2015).

Local authorities, as important social agents, should initiate social communication and information transfer, thus creating preconditions for reaching mutual agreement between the parties, as the power of local authorities is based on communication and understanding of the needs of the parties involved, thus increasing the community activity (Smalec, 2015).

Local authorities, in the exercise of their functions, must take into account the needs of citizens, have access to them, guarantee confidentiality, and provide high-quality services. The needs of stakeholders are different, hence communication plays a crucial role in fully understanding the different needs of stakeholders and harmonizing the necessary actions. As a society develops, a citizen who was more characterized in the past with the role of citizen-petitioner, now has a citizen-client relationship with a local government. Mutual trust and profitability make it possible to improve, transform and adapt services provided by the municipality to meet market needs and social change. Conscious of the needs of citizens and clients, local government officials do not only play their traditional role, but also become client advisers; in some respects, the official becomes a public affairs manager. Citizens who are satisfied with the services received will also have a good opinion of the activities of the municipality, which in turn will have a positive impact on the municipality's image. Communication between the municipality and the local population can be assessed through feedback and the level of satisfaction of the received services, since it is important for civil servants to be open and informed about the needs of citizens, to keep the procedures transparent and to obtain customer feedback. Local government communication is

¹Corresponding author. Tel.: +371 26586649, E-mail address: Zenija.Kruzmetra@llu.lv

²Corresponding author. Tel. +371 29729356, E-mail address: Dina.Bite@llu.lv

³Corresponding author. Tel. +371 29390994, E-mail address: Ginta.Kronberga@llu.lv

aimed at maximizing citizens' participation and involvement in the life of the local community, as well as promoting integration, trust and developing individuals' responsibility for their actions etc.; so education, information and motivation are very important (Smalec, 2015).

Knowledge of different communication opportunities for local authorities and community leaders can help to reduce potential conflicts. Involving citizens in decision-making encourages local people to make positive changes in their parishes and regions and increase their understanding of the decision-making process, for example, that it may be slow and may be subject to both laws and different administrative provisions. Citizen engagement enhances the possibility that the implemented projects or solutions will have wider public support and that more effective solutions will be found in mutual cooperation. Based on the knowledge of local communities and groups, practical and effective solutions are created; citizens' knowledge and skills in solving problems are supplemented; co-operation between people with different backgrounds takes place; groups of people who feel marginalized or not involved in development processes can gain more control over their lives and their own regions. When people from different parts of the region, from different localities work together, they often find much in common, create local networks, and create many different opportunities to discuss problems. Working together improves communication, understanding of the problems and their solutions, as people regularly express their anxiety / concern before communicating before the problems become too big or distorted (Bassler, Brasier, Fogle..., 2008). New information can be fed into communication through existing channels, such as the radio, bulletin boards at local cooperatives, stores, interpersonal networks etc. The internet may be used to support sustainable rural development; well-organized users' groups can access information relevant to local needs and realities (Melkote, 2009).

Besides above mentioned benefits for communicators, the essential expected result of participation is the reduction of social distance between communicators and listeners, between leaders and followers, thus promoting a fairer exchange of ideas, knowledge and experience. The ability to listen is crucial to communication between the various agents involved. The theorists put forward the following prerequisites for communicating public participation: "First, it is necessary for the public to participate effectively in the communication field; secondly, there is the design of a framework in which this can take place; and, thirdly, the media must enjoy professional autonomy, free of economic, political or whatever pressure" (Servaes, Malikha, 2005). "Development means lifting up the spirit of a local community to take pride in its own culture, intellect and environment. Development aims to educate and stimulate people to be active in self- and communal improvements while maintaining a balanced ecology" (Servaes, 2008).

Summarizing the theoretical material, it can be concluded that communication between local governments and local people is considered an instrument that not only makes it easier to implement different projects and solve problems but also contributes to the development of the place and community.

Considering above mentioned, the aim of the article is to explore government-citizen communication in rural municipalities of Latvia from the viewpoint of local citizens. Tasks are related to describing of theoretical statements concerning governance-citizen communication in the light of sustainable development and analysing empirical information. Research questions are the following: 1) where do citizens acquire information about events and current developments in local

¹Corresponding author. Tel.: +371 26586649, E-mail address: Zenija.Kruzmetra@llu.lv

²Corresponding author. Tel. +371 29729356, E-mail address: Dina.Bite@llu.lv

³Corresponding author. Tel. +371 29390994, E-mail address: Ginta.Kronberga@llu.lv

municipalities? 2) what is people's assessment of the current communication with local authorities?
3) what should municipalities improve in their communication with citizens?

Research results and discussion

1. Methodology and respondents' characteristics

The article describes and analyses the results of the questionnaire "Use of natural and cultural environment in the regions" (National Research Programme for the period 2014–2017, project 5.2.8. "Cultural environment development, preservation of the nature diversity and urbanisation processes within the context of the balanced development of Latvia") on the communication of the population with the local governments. The total number of respondents is 498: 21.6 % of them - from Mazsalaca county, 32.5 % - from Kraslava county, 21.8 % - from Kandava county, 10 % - from Sabile town and 14.1 % - from other counties of Latvia. Respondents' direct survey took place in July–November 2016 during the visits to local municipalities. Simultaneously, an internet survey was conducted using the portal "VisiDati.lv". The study used a combined sample - 66.9 % of respondents compiled the available sample - these respondents were questioned using the direct survey method on site. The rest - 33.1 % of the respondents - completed the electronic questionnaire. Respondents by gender: 74 % are women and 26 % are men. The average age of respondents is 41 years, but in general the age of respondents varies from 14 to 89 years. After life in their place of residence, respondents are divided as follows: 43.6 % of respondents have lived in their place of residence since birth, 34.2 % of respondents moved more than 15 years ago, 12.6 % of respondents moved from 5 to 15 years ago, and 9.6 % of respondents moved less than 5 years ago. Regarding the respondents' occupation, it was possible to note several responses. The largest number of respondents - 30.0 % work in state / municipal institutions, 19.2 % of respondents work in the private sector, 14.4 % currently go to school or university, 10.1 % are pensioners, 9.9 % - self-employed persons, 6, 5 % - housewives, 5 % - unemployed and the smallest group of respondents are entrepreneurs - 4.9 %. The results of the survey were analysed by focusing on the common features of the communication without separate comparison by territorial units or between different categories of the population, drawing attention to the link between the sustainability of place development and communication.

2. Analysis of quantitative data

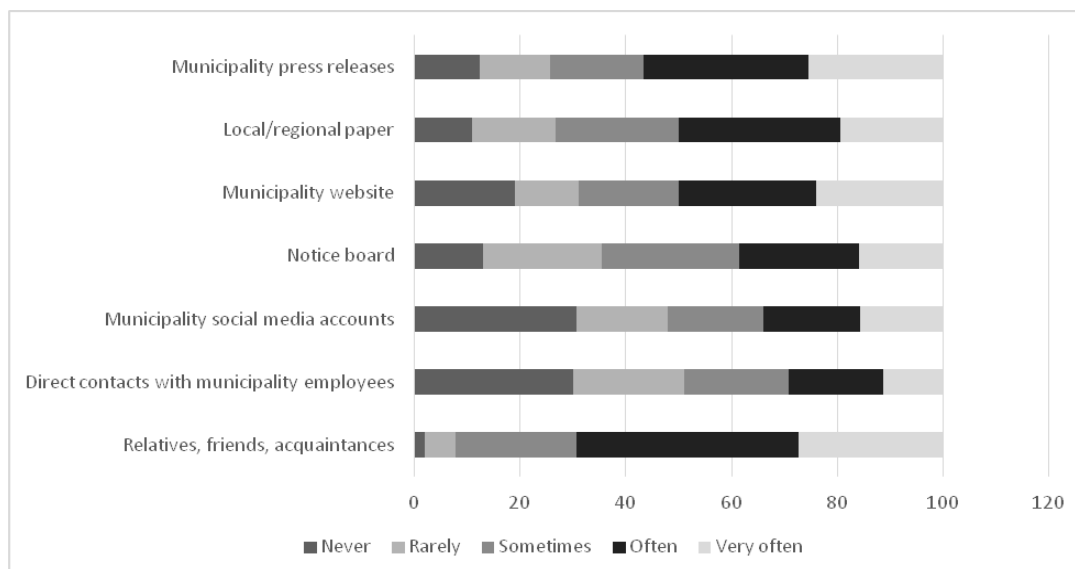
The study found out where the citizens of the municipality get information about events and topicalities in the municipality, as well as how often different sources of information are used.

Local people use different sources of information to keep up with the latest issues in their area. The total survey data confirms that people use a wide variety of media. Local government press releases (56.6 % of respondents read them often or very often), regional newspapers (50 %), municipal websites (50 %) are used relatively often for information purposes, but the most important and most frequently used information channel is informal social networks - communication with relatives, friends and acquaintances (69.3 %). There are less direct contacts with local government employees (19.1 % of respondents engage in them often or very often), following local government social media accounts (34 %), reading a message board (38.6 %) (Figure 1).

¹Corresponding author. Tel.: +371 26586649, E-mail address: Zenija.Kruzmetra@llu.lv

²Corresponding author. Tel. +371 29729356, E-mail address: Dina.Bite@llu.lv

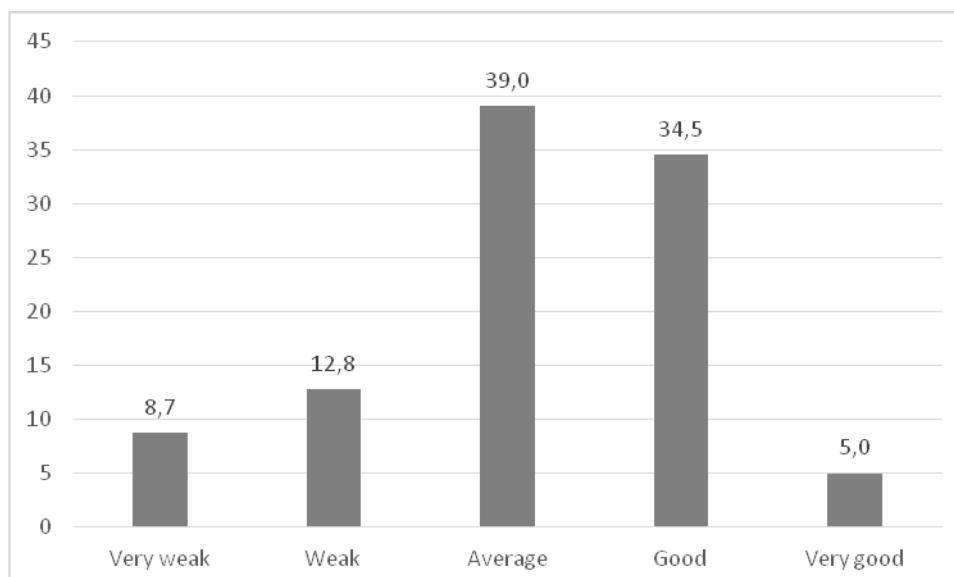
³Corresponding author. Tel. +371 29390994, E-mail address: Ginta.Kronberga@llu.lv



Source: author's calculations based on the survey results

Fig. 1. Frequency of use of various sources of information, %

The respondents in the questionnaire were asked to assess the communication of the municipality with the population, using a scale of 1 to 5, where 1 is "very weak" and 5 is "very good". In general, the average evaluation prevails: it is chosen by 39.0 % of the respondents; communication is favourably evaluated by 34.5 %, very good – by 5.0 %, but as weak and very weak – by 21.5 % of respondents (Fig. 2). Comparing the municipalities with each other, there is a difference in the assessment of the communication with the population. In Kandava municipality, there is a higher proportion of respondents who see municipal communication with the population as "weak" and "very weak"; in Mazsalaca municipality they make up 7.9 % of respondents, Kraslava municipality - 19.3 %, and Kandava municipality - 36.3 %.



Source: author's calculations based on the survey results

Fig. 2. Assessment of municipal communication with citizens, %

Similarly, in assessing their awareness of developments in the county and municipality, concerning the relevance of the content to the reader's needs (on the scale from 1-5) the dominating one is the rating "on average" (3.32 and 3.27), and the availability and reciprocity of

¹Corresponding author. Tel.: +371 26586649, E-mail address: Zenija.Kruzmetra@llu.lv

²Corresponding author. Tel. +371 29729356, E-mail address: Dina.Bite@llu.lv

³Corresponding author. Tel. +371 29390994, E-mail address: Ginta.Kronberga@llu.lv

the municipality to citizens' initiatives and problem-solving is generally evaluated as average (3.10).

Although numerical indicators suggest that citizens evaluate the communication with municipalities predominantly as satisfactory, the open question on what the municipality should improve in its communication with the population was answered by giving critical comments and suggestions.

2. Analysis of qualitative data

Having summarized the comments written by respondents to the open question "What should the municipality improve in communicating with the population", it can be concluded that this was a topical issue and the respondents' comeback to this question was high: out of 498 respondents, 245 provided their answers, although this was not intended as a mandatory question.

Communication can be analysed at the institutional level and at the individual level. Institutional communication is understood as the strategy and public image of local governments, how it positions its decisions and implemented actions, but the communication is not less important on a personal level when officials and local government employees interact with the citizens of the respective municipality. Consequently, the range of proposals addressed to the municipality is extensive, starting with the fact that there is no need to improve, because everything is satisfactory in this respect, and also expressing the opinion that the responsibility for obtaining the necessary information is to be assumed by the citizens themselves: *"All those that want to find out something get the necessary information, and nothing stops them. But those that are not happy with things won't be happy even if the information is spoon-fed to them!"* The other extreme view is to place all the responsibility for communication on the municipality: *"I don't feel like the municipality is communicating to the people. It looks like each of the parties is on its own"*. For example, it is proposed that the municipality develop a vision for the development of the county and promote it among the population. Here, it must be kept in mind that the development vision for every county has already been developed and that citizens are also invited to create and discuss it, becoming active promoters of development, rather than passive beneficiaries or performers. By contrast, other respondents are aware of their impact on the development of the area, but they believe that the weakest link in the chain is the local government's reluctance to take active action. Based on several comments, it is easy to see the desire for meetings, think tanks, forums and other forms of meetings where citizens would feel like agents able to influence the local community. Citizens express a desire for real or "regular, targeted and meaningful" communication, rather than formal deliberations or deputy outreach meetings, which are just a formality; the meeting should not be only "to provide information to look better on paper, but also discuss things that pose problems, the areas where there are difficulties". It is interesting that the respondents recommend to the management to learn the experience of specific neighbouring municipalities, where, in their opinion, the communication of local government employees with the citizens is better organized. In general, the criticisms and suggestions made by the population give the impression that local civil society is more ready for open dialogue and bottom-up development than municipalities: *"They should listen to the ideas of the people on the improvement in various areas, since the people can better tell how these problems could be prevented"*.

By studying the communication, other problems and situations that characterize rural municipalities have also been highlighted. For example, respondents in their comments express

¹Corresponding author. Tel.: +371 26586649, E-mail address: Zenija.Kruzmetra@llu.lv

²Corresponding author. Tel. +371 29729356, E-mail address: Dina.Bite@llu.lv

³Corresponding author. Tel. +371 29390994, E-mail address: Ginta.Kronberga@llu.lv

their suspicion about a certain vacuum of information or the lack of certain information, the domination of the personal ambitions of municipality deputies in relation to collective interests, the distancing of power from the local population after the administrative territorial reform.

Citizens' proposals also reveal a clear lack of understanding between the citizens and the employees of the municipality, which is expressed by some emotionally rich comments, for instance, *"We must both talk and LISTEN, instead of: I am here, and this is how things will go [accents as in the original]!"* This comment indicates possible exercising of power by the municipal government, which gives the people feeling of powerlessness. Citizens also remind that the municipality should take care of the image more directly among the local population, not against other municipalities: *"The municipality should do something not to be so distant from its people"*. Overall, invitation to the municipality to listen to the views and needs of local people is very common in comments, which generally shows a gap between authorities and the public.

Along with the power aspect, for example, the recommendation *"not to feel superior to the people of the region, then there will be good communication"*, the respondents call on the municipality to become one of the horizontal network agents in order to strengthen mutual cooperation and jointly decide on the development of the municipality. Thus, some respondents recommend placing information on the county website not only about municipal institutions, but also about companies and other organizations.

In the case of rural municipalities, the specifics of communication in rural communities cannot be underestimated, which has some advantages and disadvantages. Individual respondents point out to the employees of the municipality the breaches of confidentiality in the disclosure of personal information or emotional attitudes towards visitors. Consequently, informal, professional and ethical attitudes towards local people are expected from the employees of the municipality, or as one respondent writes, *"they must study psychology"* and learn the basics of mutual communication: *"The municipality talks to the people, but lacks the skills to persuade them of their vision, so they end up „forcing“ it on the people, which shows that people's opinions are not especially important"*. The lack of professionalism of municipality employees is highlighted by several respondents, especially in situations where citizens express criticism. Consequently, one of the proposals for improving communication is to give an opportunity to express an opinion anonymously. On the other hand, the fact that people in rural areas are well acquainted with each other can serve as a good starting point for mutual communication. Among the suggestions to the municipality, respondents mention the need of personal contact and personal involvement: *"Sometimes the human factor must be taken into account and not the material advantage"*. The presence of a human factor is an indispensable part of the communication in the countryside, because it is what these people value the most: *"The former head of administration was kinder, more accessible to people; this one is haughty"*. Respondents in this regard become municipality advisers, pointing out that *"direct communication is best when you can talk it out. People want to have personal contact"*. Thus, in order to carry out the direct duties of rural municipalities and subordinated parish administrations, account must be taken of the actual needs of the citizens that are related to the form of communication.

An important part of the comments is the proposals that are not directly related to communication, such as *"think more about young people"* or *"support for new entrepreneurs"*, which can also be interpreted as a consequence of insufficient communication in the past. In some

¹Corresponding author. Tel.: +371 26586649, E-mail address: Zenija.Kruzmetra@llu.lv

²Corresponding author. Tel. +371 29729356, E-mail address: Dina.Bite@llu.lv

³Corresponding author. Tel. +371 29390994, E-mail address: Ginta.Kronberga@llu.lv

cases, respondents point to other problems not solved in the county, considering that communication is a subordinate issue for the implementation of the local government's direct functions: *"The only thing I need from the municipality is a road to get to work / home, but it's getting worse, sometimes inaccessible. Communication does not improve the road."*

Among the constructive proposals to the municipality, there are recommendations to make more use of social networks, to make it possible to apply for news via e-mail, to communicate with local government employees electronically, to place information about meetings with local government employees in several public places, to provide answers to questions in the municipal information report: *"In the past, there were registered letters and suggestions, questions from citizens that were answered publicly (by publishing) for everyone to see. At the moment, no suggestions and issues are being discussed and published"*, as well as to use text messages in mutual communication and to publish informative materials more often so that they do not lose their relevance. A valuable proposal is to organize cultural and educational events, which would also serve as a platform for communication on current affairs in the municipality. Respondents also reflect on their own responsibility in building communication and encourage citizens of the county to become *"less shy, bolder and more active"*.

Conclusions, proposals, recommendations

- 1) Government-citizen communication in rural municipalities of Latvia is regarded as an up-to-date, but insufficiently identified and evaluated tool for the development of people's involvement and place development processes;
- 2) Municipalities in rural areas use different communication channels, including modern solutions, but the analysis of the situation reveals some inconsistency with theoretical concepts and other research results, because the dominating communication model in rural municipalities in Latvia is "top-down" model, which is often based on power relations, is one-sided and formal. Municipalities generally do not have a citizen-client approach;
- 3) The gap in government-citizen communication is also confirmed by the increasingly limited opportunities for citizens to express their views on what is going on in the municipality, thus not encouraging feedback from the population, which is a prerequisite for participatory communication. At the same time, the results of the research reveal the local population as being active agents ready to engage in communication;
- 4) The use of informal social networks is dominant in the local community, which poses the risks that information may be incomplete or misleading; therefore, local authorities as important communication agents in the place development should take into account the specifics of communication in rural communities;
- 5) The analysis of the research results highlights not only the shortcomings in the communication process between municipalities and the population, but also a wider range of problems faced by rural municipalities in Latvia;
- 6) The authors recommend rural municipalities to become more aware of the importance of communication, to create horizontal communication with various social agents, thus promoting a common understanding of the objectives of the place development.

¹Corresponding author. Tel.: +371 26586649, E-mail address: Zenija.Kruzmetra@llu.lv

²Corresponding author. Tel. +371 29729356, E-mail address: Dina.Bite@llu.lv

³Corresponding author. Tel. +371 29390994, E-mail address: Ginta.Kronberga@llu.lv

Bibliography

1. Bassler, A., Brasier, K., Fogle, N., Taverno, R. (2008). Developing Effective Citizen Engagement: A How-To Guide for Community Leaders. Retrieved: http://www.rural.palegislature.us/effective_citizen_engagement.pdf Access: 27.01.2018.
2. Bruce, S., Yearley, S. (2016). The SAGE Dictionary of SOCIOLOGY. Retrieved: [file:///E:/My %20Documents/Downloads/sage-dictionary %20\(1\).pdf](file:///E:/My%20Documents/Downloads/sage-dictionary%20(1).pdf) Access: 10.01.2018.
3. Kagume, K. (2015). Leveraging Online Engagement in Rural Municipalities. Retrieved: [https://era.library.ualberta.ca/files/9w0325881/2016-09 %20Author %20Permission-MACT-Kagume %20\(1\).pdf](https://era.library.ualberta.ca/files/9w0325881/2016-09%20Author%20Permission-MACT-Kagume%20(1).pdf) Access: 10.01.2018.
4. Lie, R., Servaes, J. (2015). Disciplines in the Field of Communication for Development and Social Change. Communication Theory 25 (2015) 244–258, International Communication Association. Retrieved: [file:///E:/My %20Documents/Downloads/Disciplines_in_the_field_of_Communicatio.pdf](file:///E:/My%20Documents/Downloads/Disciplines_in_the_field_of_Communicatio.pdf) Access: 27.01.2018.
5. Mefalopulos, P. (2008). DEVELOPMENT COMMUNICATION SOURCEBOOK Broadening the Boundaries of Communication. The International Bank for Reconstruction and development/The World Bank. Retrieved: <http://documents.worldbank.org/curated/en/752011468314090450/text/446360Dev0Comm1ns0handbook01PUBLIC1.txt> Access: 17.01.2018.
6. Melkote, S. (2009). Mass Media in Support of Sustainable Development. In *Journalism and Mass Communication*. Vol.II.220-237 pp. In Ed. Luthra R. Encyclopedia of Life Support Systems, EOLSS Publishers/UNESCO. Retrieved: https://books.google.lv/books?id=0k7DDAAQBAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false. Access: 17.01.2018.
7. Servaes, J. ed. (2008). Communication for Development and Social Change. SAGE Publications India, 356 p.
8. Servaes, J. ed. (2013). Sustainability, Participation & Culture in Communication: Theory and praxis. Chicago: Intellect – University of Chicago Press, 398 p.
9. Servaes, J., Malikhao, P. (2005) Participatory communication: the new paradigm? In Media and Glocal Change: Rethinking Communication for Development Chapter 5. 91-104 pp. Retrieved: <http://biblioteca.clacso.edu.ar/clacso/coediciones/20100824064944/09Chapter5.pdf> Access: 17.01.2018.
10. Smalec, A. (2015), LOCAL GOVERNMENT OFFICES COMMUNICATION WITH RESPECT TO RESIDENTS OF NEW CONCEPT OF MANAGEMENT. Retrieved: <http://www.toknowpress.net/ISBN/978-961-6914-13-0/papers/ML15-257.pdf> Access: 17.01.2018

¹Corresponding author. Tel.: +371 26586649, E-mail address: Zenija.Kruzmetra@llu.lv

²Corresponding author. Tel. +371 29729356, E-mail address: Dina.Bite@llu.lv

³Corresponding author. Tel. +371 29390994, E-mail address: Ginta.Kronberga@llu.lv

ENHANCING EFFICIENCY OF SMES IN LATVIA

Iveta Linina¹Dr. oec., **Rosita Zvirgzdina**² Dr. oec.

Abstract Efficient management and competitiveness of the company has become a decisive growth factor in ensuring sustainable development of SMEs. In order to identify the factors ensuring competitiveness, the authors have studied the factors characterizing and influencing the company's efficiency. As a result, the authors studied by means of a monographic or descriptive method the theoretical base for management efficiency, analysed the trends of the SME sector in Latvia and analysed the application of the principles of the theory of constraints to ensure the efficiency of Latvian SMEs. This research aims to provide companies an insight into the theoretical and real factors of the theory of constraints. As a result of the study, the authors conclude that by exploring the factors of the theory of constraints, companies can manage this process and maybe use it as one of the tools for ensuring competitiveness.

Keywords: efficiency, efficiency enhancement theory, theory of constraints, SME.

JEL code: M10

Introduction

Globalization trends are one of the most important overall causes of change in the world, and one of the most visible effects of globalization is rapid market growth. In recent years, small and medium-sized enterprises (hereinafter SMEs) have increasingly been affected by global challenges and socio-economic processes directly and indirectly. On the one hand, businesses have open access to the world market, but on the other – the pressure of competition has increased. Therefore, increasing management efficiency has become a decisive growth factor in ensuring the sustainable development and competitiveness of SMEs. Since the beginning of the transformation processes in Central and Eastern European countries more than twenty years ago, the economies of these countries have undergone enormous changes. In order to ensure overall national economic growth and an increase in the welfare of the population, how competitive SMEs are in the world and EU markets is of paramount importance. Taking into account today's dynamic business environment, issues related to sustainability of SMEs have become a priority because efficient management of technology, infrastructure and human capital have significantly improved the prospects of economic growth for both individual companies and national economies. In the long run, in order to ensure the competitiveness and development of SMEs, a cost-effective management system must become the priority of each business, moving towards a low-carbon emission and resource-efficient economy. The long-term existence of any business depends on its ability to rationally use resources and generate profits. Problems in the company are caused by ineffective incorrect actions, incompetence or even failure to act. The activities of SMEs are constantly being explored and analysed. Economic and statistical studies of SMEs, scientific publications and surveys conducted by entrepreneurs help identify key issues affecting the development of small and medium-sized businesses. However, in Latvia, unlike most European and countries worldwide, not much fundamental research exists on the prospects for development of SMEs in a rapidly changing environment. Therefore, comprehensive research on SME performance is needed, using the latest statistical data and scientific publications to get an insight of all SME challenges and to address them. This study will help identify the strategic challenges of introducing a concept for enhancing management efficiency in SMEs, which will ensure an increase in their competitiveness and sustainable development. The purpose of the research is to investigate the factors characterizing and influencing the company's efficiency. The tasks set to achieve the goal are as follows:

¹Corresponding author. Tel.: +37126306922, fax: +371 67618746. E-mail address: iveta.linina@turiba.lv
²Corresponding author. Tel.: +37126408253, fax: +371 67618746. E-mail address: rosita@turiba.lv

- 1) to analyse the theoretical basis of the principles of enhancement of management efficiency;
- 2) to describe the role of SMEs in the EU and Latvia national economy;
- 3) to determine the prerequisites for the implementation of lean management principles and its level of implementation in Latvia SMEs.

Research limitations: 167 Latvia SME managers in private sector companies were surveyed to determine trends in Latvia and to ascertain the level of understanding of entrepreneurs about the possibilities of enhancing efficiency. Due to the specifics of enhancement of management efficiency and the multifaceted nature of the particular research, the following limitations are set: the problems were studied mainly from the methodological and organizational aspects and the business sector, size, etc. was not taken into account in the survey of the respondents. The research period: 1st May 2017 until 1st August 2017.

The following research methods were used: a monographic or descriptive method and a logical-constructive method - to compare the theoretical material with the empirical results; the survey of business executives was carried out in order to find out the level of application of lean management principles in Latvia SMEs. The theoretical and methodological basis of the research was based on research, works and publications of foreign researchers and specialists in economics (A.Schumpeter, B.Ronen, D.Ricardo, H.Emerson, P. Drucker, R.Chase, W.Dettmer etc.); theoretical and practical insights on the performance of SMEs, assessment of factors influencing performance and management issues, as well as materials from scientific conferences and seminars.

1. Efficiency of enterprise operations and its management

At the beginning of the 19th century, D. Ricardo attempted to develop specific schemes to measure capital efficiency. Within the framework of this theory, Ricardo did not consider efficiency as performance, but as a relationship between performance and definite costs, which is an important economic indicator that helps to evaluate and compare the results of different activities (Ricardo, 1922: 455). At the beginning of the 20th century, the business theorist J. Schumpeter introduced the terms "innovation", "effective competition", "effective monopoly" in economic science and studied the impact of innovation on the company in terms of increasing its efficiency (Schumpeter, 1949: 255). The Italian economist V. Pareto designed a model for studying efficiency. In his research, Pareto concludes that no one can improve one's condition without worsening the position of another. This definition of efficiency is called Pareto optimum or Pareto efficiency (Oxford Economic Papers, 1993: 520 - 522). In 1911, Emerson introduced the terms "efficiency" and "effectiveness" in his work "The twelve principles of efficiency". In this work, the concepts of "efficiency" and "effectiveness" were not distinguished; the author believed that they were of the same importance. In his opinion, efficiency (effectiveness) is the most cost-effective ratio between total costs and economy (Emerson, 1917: 423).

The economist F. Drucker focused on the efficiency of companies in more detail. According to F. Drucker, efficiency means the balancing of all production factors that provides the greatest return with the slightest effort. Profit is the result of a company's efficient operations in terms of marketing, innovation and efficiency. He also developed an efficient management model. This model outlines five principles that must be followed by the company's leader in order to be effective: 1) plan their own time; 2) focus on achievements and the end result; 3) develop their own strengths and strengths of their employees; 4) necessity to determine the company's priorities

and focus on certain larger areas of activity that will achieve the best results; 5) making effective decisions (Drucker, 1954: 404).

It can be seen that the interpretation of the concept of "efficiency" differs greatly; each author has his own approach and understanding. The majority of authors associate this notion with the rational use of resources, but there are other interpretations. Mg.oec I. Kotane, in a study "The concept of business efficiency and its interpretation," looked at opinions of several economists - V. Petit, F. Ken, H. Emerson, V. Pareto, R.H. Kouz, P. Druker, T.C. Kumpen et. al. on the development of business efficiency concepts and measurement concepts in order to systematize the translation of the concept of efficiency and find the synonym of the concept of efficiency in Latvian terminology. The study concluded that there is a contradiction in the explanation of the concept and its interpretation. There is one concept of "efficiency" without distinguishing between the explanations of efficiency and effectiveness, and another that is defined as the use of internal enterprise resources that could be attributed to efficiency. The authors conclude that efficiency is based on three characteristic elements: investment, short-term performance and long-term performance. Economic efficiency is determined by the use of resources with minimum waste, while functional effectiveness is determined by the achievement of higher goals (Kotane, s.a .: 107-111). Another efficacy study was conducted at the University of Debrecen, where explanations of efficiency in various dictionaries are mentioned:

efficiency: achieving the desired result with minimal effort, expense, and waste (Victoria Neufeldt, Andrew N. Sparks, 1995); obtaining specific results with as little investment as possible or maximizing the results with existing resources (John Black, Nigar Hashimzade, Gareth Myles, 2002); technical efficiency as the manufacturer's ability to produce a maximum output of acceptable quality with minimal investment and economic efficiency as an organization's ability to manufacture and distribute its products at minimum prices (John Black, Nigar Hashimzade, Gareth Myles, 2009).

The definition of productivity is also mentioned because, according to the authors, it is a similar concept. Productivity is the result of an organization or economy per unit (John Black, Nigar Hashimzade, Gareth Myles, 2002).

So, economic efficiency is the ability of an enterprise to produce a good quality product or provide a qualitative service using as little labour, raw material or capital resources as possible. In turn, effectiveness is the ability of an enterprise to achieve results that meet the set objectives. Summarizing these definitions, it can be concluded that efficiency is the ability of an enterprise to produce a quality product or to provide a quality service with the least investment possible and achieve the set objectives.

Similar to the interpretation of the concept of efficiency, economists disagree in defining the criteria for efficiency. Moreover, each company has its own specifics of work, which also determines which criteria best reflects the organization's performance. Most often, the company's economic efficiency is assessed by profitability indicators. Therefore, these indicators are the ones that are most often mentioned in business literature. In contrast, authors of the earlier mentioned Debrecen University study consider that a company is successful if it is efficient, competitive and liquid. Efficiency is a relative category and its calculation according to a common formula is not sufficient enough to determine whether a company is efficient or not (Nabradi, Peto, Balogh, 2007: 9-10).

In order to select the criteria to use while assessing a company's economic efficiency, the specific its operations, the cash flow and other factors that make the company different from

¹Corresponding author. Tel.: +37126306922, fax: +371 67618746. E-mail address: iveta.linina@turiba.lv
²Corresponding author. Tel.: +37126408253, fax: +371 67618746. E-mail address: rosita@turiba.lv

others must be taken into account. These criteria can be used by any company after adapting them to the specifics of the particular company.

The study "Business Efficiency and Ergonomics in Latvian Enterprises" conducted by the University of Latvia (LU) in 2014 found that there are some common signs that show an organization is not efficient: it takes a lot of time to do simple things, does not implement short, simple projects that could provide small but immediate returns, planning is ongoing, but no plan is being implemented, not all resources are used, not all employees want to achieve maximum improvements, low self-motivation of employees, attitude to work responsibilities, illogical path between operations, no flow, difficult decision-making process, differing future visions, customer complaints etc. These features are common to both small, medium and large businesses, regardless of their sphere of operations.

The following methods were used to improve efficiency: Benchmarking; Six Sigma (Six Sigma); Theory of Constraints; Statistical Process of Control; Balanced Scorecard; Total Quality Management; Process management; LEAN Management; Excellence Models.

According to the LU study, only a few companies use some of these methods: 56.8 % use the process management method, 58.6 % - LEAN method and 75.35 % - excellence models (Kalkis, Legzdins, Krumholce, 2014). Such a situation in Latvia business shows that insufficient attention is being paid to efficiency issues or they are not being studied sufficiently. There may be various reasons for this - the lack of interest of entrepreneurs in improving their performance, lack of information, and excessive self-esteem. In terms of lack of information, it should be acknowledged that sufficient attention has not been paid to methods of enhancing efficiency in Latvian literature on economics and the above-mentioned theories are not widely discussed (Behmane, Trofimov, Putn, 2013: 9-12).

One of the theories considered to understand the enhancement of management efficiency is the Theory of Constraints. The Theory of Constraints (TOC) is a philosophy of system management, founded by Eliyah M. Goldratt in the early 80s. The fundamental thesis of the theory argues that constraints create limits to the development of any system. Goldratt developed this theory as a systematic approach to the continuous improvement process, which makes it possible to enhance the efficiency of a company without additional investments.

Several theories on enhancing business efficiency are focused only on processes and not the system as a whole; there is no mention at all of factors limiting the system. TOC is a theory with recommendations that not only explains things that do not allow systems to realize their potential, but also recommends an action plan to improve the situation. Goldratt's theory is devoted to transformations and enhancements and following its principles, one can answer three main management questions: *What needs to be changed? What to change to? How to make changes?*

Answers to these questions will affect certain processes, but they are formulated to understand what needs to be addressed in order to improve the system as a whole.

Goldratt illustrates the system as a linked chain - this is the main idea of the TOC. If the system functions as a chain, the weakest phase can be detected and fixed. However, the maximum level of occupancy of all stages does not guarantee the efficiency of the whole system; the system can work efficiently even if only one chain stage works at maximum power. According to Goldratt, the system needs to be assessed only as a whole rather than at each stage (Dettmer, 1997: 443).

There are four types of constraints: 1) resource constraints; 2) market constraints; 3) company policy constraints; 4) Dummy Constraints (Ronen, 2006: 51-61).

¹Corresponding author. Tel.: +37126306922, fax: +371 67618746. E-mail address: iveta.linina@turiba.lv
²Corresponding author. Tel.: +37126408253, fax: +371 67618746. E-mail address: rosita@turiba.lv

In the recommendations section of the theory, five consecutive steps were developed to help concentrate all efforts on specific activities in order to reorganize the whole system in the shortest timeframe: to identify system constraints; reduce the impact of the system constraints; focus all the attention on the system's constraints; eliminate the constraints; return to the first step, not allowing inertia to become a system constraint.

All these instructions are useful, but appear too abstract to be better understood and applied in practice. Goldratt, in his theory, developed specific methods that help identify and successfully eliminate constraints, as well as criteria for measuring results. TOC is more than just a theory. It is a model that includes definitions, recommendations, methods and tools.

The question is how to assess the impact of changes on a system's performance. Part of the answer is hidden in the requirement of identifying the constraining element and ignoring the non-constraining elements. In this case, it is possible to achieve maximum system performance with a minimum amount of resources, and determine precisely to what extent the improvement of individual elements affects the entire system as a whole. Goldratt developed a very handy technique for determining the efficiency of certain management decisions for the achievement of the goals of the whole system. Each activity is evaluated by the level of impact on three parameters: **productivity in terms of cash flow (T), investment (I) and operating expenses (OE).**

Goldratt claims that these parameters are interrelated, which means that changes in one parameter leads to changes in the second parameter or in all. If you increase your cash flow (T) productivity by raising your sales, then it's likely that investment (I) and operating expenses (OE) will also increase. If an enterprise is able to achieve a definite income level with the least investment and expense, then more funds remain in the system (net profit).

In order to assess how these criteria change when making decisions, their initial levels must be evaluated. Ideally, T must be maximum and OE and I minimum. It is theoretically possible, but in practice it should be taken into account that productivity in terms of cash flow is limited by the size of the market for the product or service and it is not possible to achieve without expenses or investments. In order to determine the maximum possible return, it is necessary to estimate how much productivity can be increased, given the size of the market and the demand. It is also necessary to set minimum costs and investments, without which the company cannot exist. Comparing these "ideal" indicators with actual indicators, one can conclude where corrections are needed.

If the idea does not lead to productivity in terms of increasing cash flows, then the idea is likely a waste of time and money.

One might wonder what to pay more attention to - T, I or OE. Generally, most companies in a competitive environment focus on reducing expenses (OE), then reducing investment (I), and only then on the system's capability to increase productivity and generate revenue (T).

TOC tools were developed in accordance with the laws of logics in order to successfully manage the process. These are five types of logical tree, laws, and charts: "current reality tree", "conflict resolution diagram" "thunder cloud", "future reality tree", "transition tree" and transformation plan "criteria for checking logical assumptions ". The criteria are used to design the diagram to make sure the existing assumptions are logical. One can also analyse logical trees with their help and understand the course of logical thinking (Dettmer, 1997: 443).

2. The role and significance of SMEs in the national economy

It is recognized worldwide that SMEs play an important role in economic development. This significance is annually confirmed by the Eurostat statistics - micro enterprises provide the same number of jobs as the large companies together (~ 40 %). In support of SMEs, a Small Business Act was adopted in 2008, which stated that it was necessary to support the needs of small and medium-sized enterprises, "to improve the overall policy approach to entrepreneurship" (EU law, s.a.). Its main objective is to integrate the idea of small first into the process of drafting policy documents, to improve the overall policy approach to entrepreneurship, in particular by promoting the development of small and medium-sized businesses and helping to prevent barriers to its development. In Latvia, SMEs, like elsewhere in Europe, account for a large part of the economy and play an important role in generating gross domestic product and employment (Economics Minister, s.a.). The high proportion of small and medium-sized enterprises in both the European Union (EU) and the economy of Latvia points to the need to evaluate the results achieved by these companies. Companies, both large and very small, are generally drivers of economic growth. Economic globalization will scatter value chains around the world. The globalization of value chains affects not only big companies. More and more, SMEs are shifting their activities to other places, especially to Asia. Many SMEs are learning new forms of businesses and looking for specific competences around the world. This kind of development is complicated, especially for non-metropolitan SMEs.

The growth and development of SMEs is an essential prerequisite for Latvia's overall growth and competitiveness in the near future. SME development is a matter of national policy, and Latvia's main task is to increase the proportion of SMEs in the economy of Latvia, gradually moving closer to the EU average (50 SMEs per 1000 inhabitants) (Economics Minister, s.a.). It is precisely SMEs in Latvia, which are the basis of the national economy, are most threatened by various risk factors - both by external and internal environment factors. One of the most important features of effective and long-term activity of SMEs is the lean management of the company, which involves the coordinated functioning of the company's internal process and resources similar to that of a clock mechanism: everything is logical; all the details are needed; they fulfil their functions, which are not duplicated; the owner receives a predictable and positive result in the long term - the exact time. Latvia joined the European Charter for Small Enterprises in 2002, whose main goal is to create friendly support policies for small and medium-sized enterprises.

Interest in managing the problems of SMEs was highlighted in the work of the Bolton Committee established in the United Kingdom (1971), which found that the size of the company was relatively related to the size of the sector in the market and the number of competitors in that particular sector of the economy, and outlined the characteristics of such group of enterprises: 1) relatively small market share; 2) the company has no opportunity to influence the level of market prices; 3) decisions related to the management of the company are taken by the owner personally; 4) employees are barely involved in the decision making process; 5) the business is institutionally independent, but the freedom of decision making may be restricted to its existing participants (family business, corporation). Summarizing opinions of theoreticians and practitioners regarding the advantages of the existence of small businesses and the significant differences from large companies, the authors conclude that all enterprises, regardless of their size, should identify the most important value generating processes and resources, evaluate the costs associated with value

creation and focus on cost management using efficiency indicators. As global competition grows, issues relating to quality management of SMEs are becoming more and more important as the company is a key element of the economic system, and the sustainable development of a country or a region is dependent on its ability to function in the long term. This issue becomes particularly relevant in the context of a comprehensive economic downturn. The high proportion of small and medium-sized enterprises in both the European Union (EU) and Latvia economy points out to the need to evaluate the results achieved by these companies with the aim of finding appropriate tools for measuring and managing performance. Taking into account the modern day dynamic business environment, issues of efficient management of SMEs have become a priority because quality management of technologies, infrastructure and human capital can significantly improve the prospects of economic growth both at the individual company as well as national economy level.

3. The use of lean management concepts in SMEs in Latvia

The authors conducted a survey of 167 managers of various companies in SMEs during the period May 2017 - August 2017. The questionnaires were developed based on self-assessment model criteria and were drawn up to identify the use of principles of the lean management concept. The respondents' sample was 167 executives selected on a random basis from databases accessible to the authors. All data obtained from the survey were considered valid for the study. All the identified companies met all the SME criteria.

The questionnaire for SME managers is divided into two parts: ability to identify problems and plan measures for resolving the problems. It is possible to evaluate several elements in each section using the Likert scale on a 10-point system, where 1 is very bad, and 10 is excellent. The authors have presented the results of the survey as a summary of two main parts: problem identification and planning measures for resolving those problems (Table 1).

Table 1

Evaluation of use of principles of the theory of constraints

Use of principles of the theory of constraints in enterprises	Arithmetic mean	Standard error of mean	Median	Mode	Standard deviation	Skewness	Range	Maximum	Sum
Ability to identify system constraints (What needs to be changed?)	5.78	0.76	6.00	6.00	2.28	5.19	4.38	9.00	52.00
Action plan for resolving problems (What to change to? And how?)	3.22	0.70	3.00	2.00	2.11	4.44	7.27	8.00	29.00

As it can be seen in the part regarding the company's ability to identify the company's operating system constraints, the average arithmetic mean is above average ($\bar{X} = 5.78$; Me = 6.00; Mo = 6.00), which could not be considered as positive to ensure management efficiency. The indicator for the second part on action plan for problem solving is very low ($\bar{X} = 3.22$; Me = 3.00; Mo = 2.00), which indicates very big problems in companies in this area.

Summing up all the results of the research, it can be concluded that the understanding of SME management regarding enhancement of management efficiency in general, including the Theory of Constraint, is low. Researching the principles of this theory, one could also see that the company management is largely unable to identify constraints and even if they are able to identify constraints, they are not able to develop an action plan for eliminating these constraints, which may be the reason for the company's failure to develop and grow.

The company's management efficiency is based on identifying the company's constraints and developing an action plan for their elimination, which would allow the company to develop and become competitive.

Conclusions and Recommendations

Summarizing the research results, several conclusions and recommendations can be made.

- 1) There are several theories and methods on increasing the efficiency of an enterprise's operations. Taking into account the structure of the company and the specifics of the work, it was concluded that the best results will be obtained by the use of criteria and tools of theories of constraints, queues and lean management.
- 2) Using the Theory of Constraints in the management of a company, the company's operating constraints can be identified and an action plan for their elimination can be developed.
- 3) The authors recommend that the definition of the EU SMEs be revised to include only small and medium-sized enterprises, which are also most in need of support from the funds, as the definition of small and medium-sized enterprises in the European sense is so broad that it includes practically all companies in the European Union (~99 %) Consequently, those companies that are really small and need funding are not always able to access it.
- 4) The overall economic development of Latvia and the increase in welfare of the population depend directly on the extent to which SMEs are sustainable, competitive in the global market. One of the main problems hindering the development of SMEs in Latvia is the business environment. The competitiveness of the SME sector cannot develop without a business-friendly environment. This is largely determined by the degree to which national tax policies are competitive, what kind of capital markets, infrastructure, education systems and state aid effectiveness exist and how well-organized and stable corporate law is.
- 5) An SME's development strategy for increased profits and economic growth must be linked to the obligation to create enough jobs, to achieve sustainable development and to ensure prosperity. It is important that SMEs develop knowledge-based innovation in the future.
- 6) Given the large proportion of small and medium-sized enterprises in Latvia from the total number of enterprises, attention should be paid to the effectiveness of self-assessment and the application of various methods of increasing efficiency.
- 7) An essential condition for ensuring the sustainable development of Latvia SMEs is the ability to analyse achievements and the desire to continuously improve in order to achieve excellence
- 8) The relatively small number of companies that are able to identify constraints and develop action plans to overcome them can be explained by the lack of understanding of their necessity for the company's development and competitiveness.
- 9) In order to implement the principles of the Theory of Constraints in practice, Latvia SMEs need to promote accessibility to this theory in the business environment in Latvia.

References

1. Economics Minister, s.a. Viewed 18.10.2017. <http://www.em.gov.lv/em/2nd/?cat=23394>
2. Chase, R. B. (1998) "Production and Operations Management ". Irvin, McGraw-Hill Companies, Inc., 950 p.
3. Drucker P. F. (1954) "The practice of management". New York : Harper & Row, 404 p.
4. Behmane, D., Trofimovs, I., Putnis, D. (2013). „Ārstniecības iestāžu visaptverošas kvalitātes vadības sistēmas metodika". Latvijas veselības ekonomikas asociācija, 9.-12.lpp.
5. Black, J., Hashimzade, N., Myles, G. (2002). A Dictionary of Economics. Second Edition. Oxford University Press

6. Black, J., Hashimzade, N., Myles, G. (2009). A Dictionary of Economics. Third Edition. Oxford University Press.
7. Dettmer, H. W. (1997) "Goldratt's Theory of Constraints. A Systems Approach to Continuous Improvement". ASQ Quality Press Milwaukee, Wisconsin, 443 p.
8. Emerson, H. (1917). "The Twelve Principles of Efficiency " 5th Edition. New York : Engineering Magazine, 423 pp.
9. EUR-Lex webpage. Viewed 17.09.2017.
10. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0394:FIN:LV:HTML>
11. Kalķis, H., Legzdina, L., Krumholce, P. (2014). "Biznesa efektivitāte un ergonomika Latvijas uzņēmumos". LU, Rīga.
12. Kotāne, I. "Komerccdarbības efektivitātes jēdziens un tā interpretācija" - Sociālo zinātņu žurnāls Nr. 1(6), 107.-111. lpp.
13. Nabradi, A., Peto, K., Balogh, V., Szabo, E., Bartha, A., Kovacs, K. (2007). "Efficiency indicators in different dimension". Scientific Papers, Agroinform Publishing House, Budapest.
14. Neufeldt, V., Sparks, A. N. (1995). Webster's New World Dictionary. Pocket Books, 694 p.
15. Oxford Economic Papers. (1993): "Markets and freedom: Achievements and limitations of the market mechanism in promoting individual freedoms", 45 (4), 520-522 pp.
16. Pyzdek, T. (2000). "The Complete Guide to the CQM". Quality Publishing, Inc., 206 p.
17. Ricardo D. (1922). "The Principles of Political Economy and Taxation". London, G. Bell and sons 455 p.
18. Ronen, B. (2006). "Focused Operation Management for Health Service Organizations". U.S. Jossey-Bass 354 p. ; pp. 51-61.
19. Schumpeter, A. (1949). "The theory of economic development: an inquiry into profits, capital, credit, interest, and the business cycle". Cambridge, Mass. : Harvard University Press, 255 p.
20. Smith, A. LL.D. (1902). "The Wealth of Nations". New York, Collier, 457 p.
21. Sztrik, J. (2012). "Basic Queueing Theory". University of Debrecen, 193.p.

ON THE MEAN SIZE OF LAND UNITS

Siim Maasikamae¹, Ph.D.

¹ Estonian University of Life Sciences

Abstract. The size of farms, fields, cadastral parcels and other territories (generally land units) is a common indicator to describe them. The mean size of land units is used for different purposes, for example for comparison of different regions. However, the same mean size of land units can be the result of different initial data. The mean size of two land units is 10 hectares in both cases: 19+1 hectare or 11+9 hectare. The disadvantages of mean size are criticised also in literature. In this paper, the area weighted mean size as indicator to describe the holdings land use conditions are presented. The study aim is to show the difference between mean size and area weighted mean size of land units of the holdings. The difference between mean size and area weighted mean size of land units is shown on the basis of formal calculations. Then the difference between mean size and area weighted mean size of land units is analysed by empirical data. The formal calculations showed that the difference between mean size and area weighted mean size of land units of the holding depends on the variability of land units' size. The results of the empirical study showed that mean size and area weighted mean size of land units for one holding can differ more than three times while in some cases this difference is small. Finally, the recommendation to use the area weighted mean size for characterisation of land use conditions of land holdings has been made.

Key words: area weighted mean area, land holdings, land use conditions.

JEL code: Q10, R59

Introduction

The size of farms, stock companies and other producers of agricultural products is one of the indicators to describe them. However, the size of agricultural producers can be understood differently. For example, the land area (hectares) and the economic size (expressed in euro) of farms is used in FADN farm return reports (FADN, 2017). J. Yee and M. C. Ahearn (2005:2231) pointed out five different farm size measures: "acres operated per farm, real land and building value per farm, real cash receipts per farm, real cash receipts plus government payments per farm, and an imputed measure of the real capital service flow per farm". The focus of the present study is on the land area as the indicator describing land use conditions of the agricultural producers and size is understood as spatial extent of some part of land, for example the area of cadastral parcel or arable land field. It should be mentioned also that the size of plots is among the indicators describing their spatial properties. Area of plots is used in several studies, for example Neuwirth et al. (2016) and Sikk and Maasikamae (2015a), to describe the study objects and land use conditions.

All kind of agricultural producers (farms, stock companies etc.) are called generally as holdings in the following text if there is no need to point out some specific type of entities. The general term for all kind of plots, for example cadastral parcels or arable land fields, in the following text are called land unit if there is no need to point out some specific type of plots. The combination of plots can be also treated as land units, for example one property can consist of a set of cadastral parcels. Such a set sometimes makes a whole and can be treated as one land unit.

The size of holdings can be researched from different aspects. K. Deininger and D. Byerlee (2012) investigated the balance between small and large farms. The land unit size is the primary characteristic to describe the land use conditions of agricultural holdings (Sikk and Maasikamae, 2015b). Dimitreu et al. (2013) and Terry van Dijk (2003) used the size of land units (parcels) as one of the indicators for characterisation of land fragmentation. Those were just a few examples.

¹ Corresponding author Siim Maasikamae, e-mail: siim.maasikamae@emu.ee

However, there is often the need to know some average figures about land units and mean area is one of them. The mean size of land units can also be used for comparison of land use patterns in different regions. For example, Burton and King (1982) used average area per plot and average area per holding for analysing and characterising land consolidation issues. Average farm size is used for international comparison of holdings (Lowder et al., 2016). The mean size of arable land fields inside a plot can be used as the indicator for evaluation of the internal fragmentation of parcels (Aasmae and Maasikamae, 2015). The mean size of land holdings is a usual indicator in several statistical databases, for example European Commission Eurostat database (<http://ec.europa.eu/eurostat/data/database>) and Statistics Estonia (<https://www.stat.ee/>). Different statistical publications (Agricultural ...2012; Eurostat regional 2013) provided also average data about agricultural holdings.

Nevertheless, it is necessary to say that mean size of land units as indicator to describe land holdings has some disadvantages. The problem is that the mean size of land units does not say anything about the distribution of those units by their size. The average farm size as indicator is criticised by Bokusheva and Kimura (2016), Demetriou et al. (2013), Lund and Price (1998). It is proposed to use the hectare weighted median as indicator to characterise the degree of land use concentration (MacDonald et al., 2013). The issues of land use concentration are well investigated by Bokusheva and Kimura (2016).

However, the area weighted median size of land units is not a good indicator to describe the land use conditions of a particular landholding. It can be very confusing to use any kind of median (area weighted or simple) for characterising the average land use conditions of a particular holding from a land cultivation point of view. That problem becomes complicated if the number of land units in the land holding is small, sometimes less than 10, and the size of land units is very different. In this light, one can ask, if the mean size and the area weighted mean size are different, and if they are different then how big is this difference?

In the study, the formal calculations of mean size of holdings and the area weighted mean size of holdings are first presented. Then the results of the empirical study are presented. The aim of the paper is to test if the mean size of land units of a holding and area weighted mean size of the same holding can differ remarkably. The first research task was to perform the formal calculations of mean size and area weighted mean size of land units for the abstract holdings. The second task was the calculation of mean size and area weighted mean size of land units of holdings on the basis of empirical data. Final task was the analysis of the results of performed calculations.

Methods and materials

Two methodical approaches and tasks have been used in the study. Some formal calculations in two versions have been performed at first. It is supposed that there are holdings consisting a large unit and small unit(s). The size of small unit(s) was/were increased step by step till all land units of the holding became equal. The total size of holdings was 60 hectares in both cases.

The initial composition of the holding was 59+1 hectares according to first version of formal calculations. On the next step the composition of the holding was 58 + 2 hectares. The similar changes (decrease of large unit and increase of small unit) continued till there was two equal units of 30 hectares both.

The initial situation of the holding was different in the second version of formal calculations. The number of land units was six (one large and five small units) and the initial composition of the

holding was 55+1+1+1+1+1 hectares. On the next step the composition of the holding was 50+2+2+2+2+2 hectares. The similar changes (decrease of large unit and increase of small unit) continued till there was six equal units of 10 hectares each.

For each step of the area changes the simple mean size of the land units and the area weighted mean size was calculated. The Equation 1 was used for calculation of the simple mean size of land units and the Equation 2 was used for calculation of the area weighted mean size of land units.

$$\bar{a} = \frac{\sum a_i}{\sum n} \quad (1)$$

$$\bar{a} = \frac{\sum a_i w_i}{\sum w_i} \quad (2)$$

Where:

\bar{a} is the mean area or area weighted mean area of land units;

a_i is the area of i -th land unit;

n is the number of land units in holding;

w_i is the weight of the area of i -th land unit (in this case the area of land unit is the weight for itself).

The corresponding graphs were composed to illustrate the changes of the area weighted mean size if the relative importance of small land units in the holding increases.

Secondly, two visual comparisons of the mean size and area weighted mean size of holdings were performed on the basis of empirical observations. The Tartu County in Estonia was the study area for the mentioned comparisons. The first comparison of the mean size and area weighted mean size was made for the agriculture and forest properties consisting of more than one cadastral parcel. There is no distinction between agriculture and forest properties in Estonian cadastre and the common name of the intended use for such parcels is profit yield land. Data about cadastral parcels were provided by the Estonian Land Board (dated as of 1.01.2017).

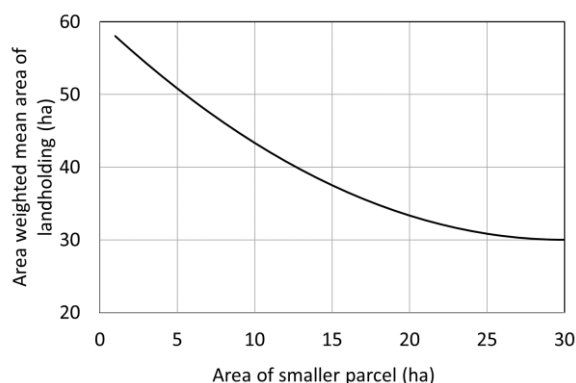
The second comparison of the mean size and area weighted mean size was made for the arable land fields of holdings applying for the different subsidies from the Agricultural Registers and Information Board (ARIB hereinafter). Data about arable land fields were from the ARIB fields registers (in ESRI shape format.) One agricultural holding uses more than one arable land field as a rule. Some holdings are large and used hundreds of arable land fields as separate land units.

The Equation 1 and Equation 2 were used for the calculation of the mean size and area weighted mean size for the mentioned above two comparisons. The X-Y scatter plots were used for visual comparison of mean size and area weighted mean size of holdings. The holdings were ordered increasingly by their simple mean size. In this way dots representing the mean size of observed holdings made a line on the chart. The area weighted mean size of the same holdings were presented also on the same chart. In some case the mean size and the area weighted mean size are similar (the respective dots on the chart are close to each other) while in some cases the difference between mean size and area weighted mean size is bigger.

Finally, the general comparison of the mean size of land units and the area weighted mean size was made.

Research results and discussion

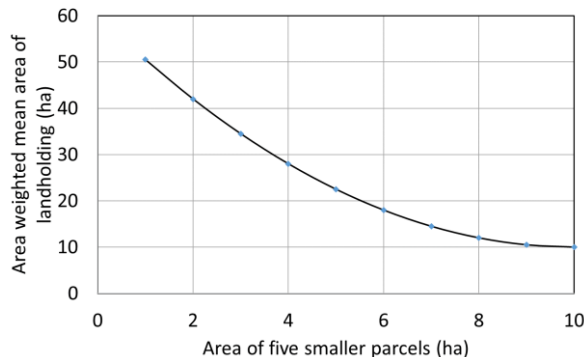
The Figure 1 and Figure 2 showed the results of the formal calculations, described on the part of methods and materials. The figures show the change of the mean area of land unit depending on the ratio of small and large land units in the holding. The Figure 1 shows the changes of the weighted mean size for the land holding consisting of two land units and Figure 2 respectively for the holding consisting six land units. The total area of the holding is 60 hectares in both cases.



Source: author's calculations

Fig. 1. The weighted mean area of the land units depending on the ratio of small and large land unit (case of one small and one large land unit)

If the size of smaller land unit changes from one hectare to 30 hectares (Fig. 1) then the area weighted mean size changes from the 58.03 hectares to 30 hectares while the mean size of two land units is all the time 30 hectare.



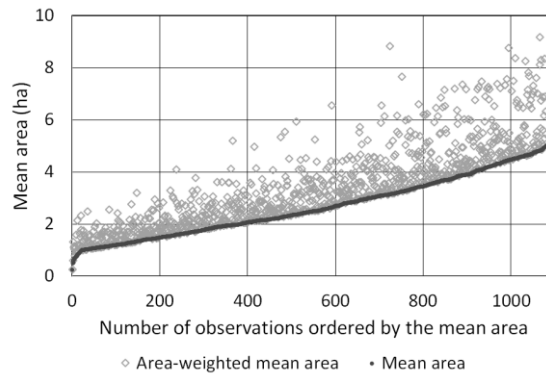
Source: author's calculations

Fig. 2. The weighted mean area of the land units depending on the ratio of small and large land units (case of five small and one large land units)

The curve on the Figure 2 shows the change of the area weighted mean size for the holding consisting one large land unit and five small land units. The initial value of the area weighted mean size for the six land units (55+1+1+1+1+1 hectares) is 50.5 hectares and it will be 10 hectares when all six land units will be equal by size. The simple mean size of the holding is 10 hectares all the time, not depending on the proportions of land units in the holding.

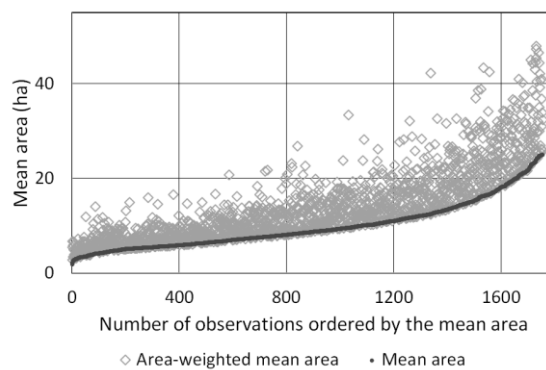
The formal calculations illustrate the fact that mean size and area weighted mean size can differ remarkably, from 1.9 to 5 times in presented calculations. The comparisons of the actual differences between mean size and area weighted mean size are presented on the Figure 3, Figure 4, Figure 5 and Figure 6. There are two markers for each holding on those figures, dark points to indicate the mean size of the land holdings and grey diamonds to indicate the area weighted mean size respectively. All observations (holdings) were ordered by their mean size when

the graphs were constructed. It was necessary in order to make a clear distinction between two types of markers. Figure 3, Figure 4 and Figure 5 show the difference between mean size and area weighted mean size for the agriculture and forest properties consisting of at least two cadastral parcels. Three figures were used to describe the same phenomenon in order to reduce the overlap of markers on the chart and to get better visual readability.



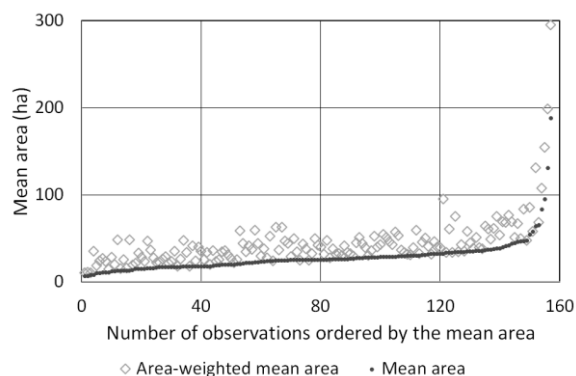
Source: author's calculations based on Estonian Land Board data

Fig. 3. Comparison of the mean area and area weighted mean area of parcels of the profit yield land properties (the total of properties in the group is 2-10 ha, N=1080)



Source: author's calculations based on Estonian Land Board data

Fig. 4. Comparison of the mean area and area weighted mean area of parcels of the profit yield land properties (the total of properties in the group is 10-50 ha, N=1755)

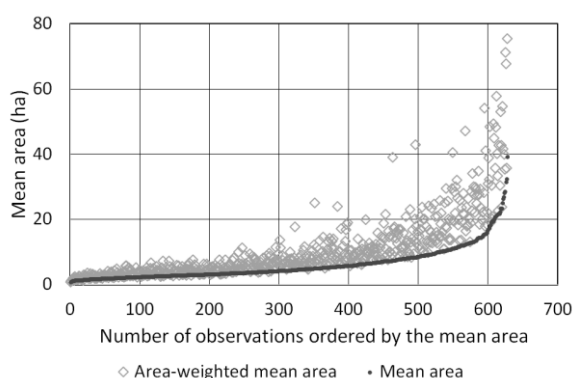


Source: author's calculations based on Estonian Land Board data

Fig. 5. Comparison of the mean area and area weighted mean area of parcels of the profit yield land properties (the size of properties in the group is more than 50 ha, N=157)

The visual assessment of the Figure 3, Figure 4 and Figure 5 showed that for some holdings the mean size and area weighted mean size are similar while in some cases there are big differences between those indicators. The Figure 6 shows the comparison of mean size and area weighted

mean size for arable land fields by land holdings applying for subsidies from ARIB. This figure is similar to the figures describing differences between mean size and area weighted mean size for the agriculture and forest properties. For some holdings the field mean size and area weighted mean size are similar while in some cases the differences are more than two times.



Source: author's calculations based on the Estonian Agricultural Registers and Information Board data

Fig. 6. Comparison of the mean area and area weighted mean area of the arable land fields of agricultural holdings

The Table 1 gives some numerical insights into the differences between mean size and area weighted mean size for the agriculture and forest properties. The properties are divided into three groups and this division corresponds to the Figure 3, Figure 4 and Figure 5.

The comparison of the mean area of parcels and the area weighted mean area of parcels of the agricultural and forest (profit yielding land) properties

Table 1

Area of properties (ha)	Number of properties	Number of parcels	Total area of fields in the group		Mean area of parcels (ha)		Area-weighted mean and simple mean ratio
			ha	percentage	simple mean	area-weighted mean	
2.0 to 10.0	1080	2388	6088	10.3	2.5	3.8	1.52
10.1 to 50.0	1755	4476	41164	69.9	9.2	16.6	1.80
More than 50.0	157	462	11661	19.8	25.2	63.7	2.53
Total	2992	7326	58913	100.0	8.0	24.6	3.07

Source: author's calculations based on Estonian Land Board cadastral data

The figures in the Table 1 show that on average the mean size and area weighted mean size of properties differ about 3 times. However, the difference between mean size and area weighted mean size exists in all area groups of properties. The similar calculations were made for the arable land fields in the holdings. Results of those calculations are presented in Table 2.

Table 2

The comparison of the mean area of arable land fields and the area weighted mean area of arable land fields of agricultural holdings

Number of fields in land holding	Number of investigated land holdings	Number of investigated arable land fields	Total area of fields in the group		Mean of fields (ha)		Area-weighted mean and simple mean ratio
			ha	percentage	simple mean	area-weighted mean	
2 to 5	544	1633	6185	10.0	3.8	12.2	3.21
6 to 10	128	941	5438	8.8	5.8	18.4	3.17
More than 10	147	4791	50263	81.2	10.5	29.7	2.83
Total	819	7365	61886	100.0	8.4	26.9	3.20

Source: author's calculations based on Estonian Agricultural Registers and Information Board data

As with the agriculture and forest properties, the mean size and area weighted mean size of the arable land fields of the holdings differs on average 3.2 times. Similar differences can be observed if one looks at the holdings by groups.

The aim of the research was to test if the mean size of land units of a holding and area weighted mean size of the same holding can be different and how big this difference can be. Results of this study showed that the mean size and area weighted mean size of some holdings can be different while for some holdings this difference is practically missing. Such pattern occurred for the parcels of the agricultural and forest (profit yielding land) properties and as well for the arable land fields of agricultural holdings. The difference between mean area and area weighted mean area shows that the holding consists of land units that are different by size. The mean area and area weighted mean area are similar if the area of land units is similar. Thus, the comparison of the mean area and area weighted mean area gives additional information about the distribution of land units by size in land holdings.

It is important to keep in mind the purpose for which the mean size of land holdings is used. It can be used for assessment of the land use conditions (spatial properties) of particular holdings but can also be used for example for comparison of the general land use parameters of different regions. Thus, the clear distinction must be made if the area weighted mean size is used for characterisation land use conditions of particular holdings (holdings level) or for the description of general holdings structure in particular region. The area weighted mean size does not substitute the mean size of land units in all cases. They rather complement each other.

In some aspects, the size of the land unit is a value itself, especially if use of arable land is discussed. The possibilities to combine the different land cultivation activities on the large fields are more flexible than on the small ones. Some very small land units of the holding can reduce the mean size of the land units while most of the land cultivation activities occur on the large land units. In this way, the actual land use conditions and the mean size of land units are not well correlated. The use of the area weighted mean size of land units instead of simple mean size is a possibility to solve this problem.

The presented results in this paper have a preliminary character. There are several questions for the further research. An important issue for the further studies is the place and role of mean size of land units among other indicators describing spatial properties of holdings, e.g. land fragmentation.

Conclusions, proposals, recommendations

- 1) The use of area weighted mean size of land units instead of simple mean size applies to the purpose if we want to characterise the land use conditions of particular holding consisting of several land units and the size of those units is very different.
- 2) The results of the study showed that in average the mean area and area weighted mean area of land units differ about two-three times.
- 3) The formal calculations showed that the difference between mean size and area weighted mean size is the bigger if the variability among land units of one holding is bigger.
- 4) The area weighted mean size of land units can be used first of all for the characterisation of spatial properties and land use conditions of holdings.

Bibliography

1. Aasmae, K., Maasikamae, S. (2014). Internal Fragmentation of Agricultural Parcels. *Research for Rural Development 2014, 2: Annual 20th International Scientific Conference Proceedings*. Jelgava, pp. 278–282.
2. Agricultural Census 2010. (2012). Eesti Statistika, Statistics Estonia, p 96. Retrieved: https://www.stat.ee/valjaanne-2012_pollumajandusloendus-2010. Access: 15.01.2018.
3. Bokusheva, R. and Kimura, S. (2016). Cross-Country Comparison of Farm Size Distribution. OECD Food, Agriculture and Fisheries Papers, No. 94, OECD Publishing, Paris, p. 46. Retrieved: <http://dx.doi.org/10.1787/5jlv81sclr35-en>. Access 15.01.2018.
4. Burton, S., King, R. (1982) Land Fragmentation and Consolidation in Cyprus: A Descriptive Evaluation. *Agricultural Administration*, Volume 11, Issue 3, pp 183-200.
5. Deininger, K. and Byerlee, D. (2012). The Rise of Large Farms in Land Abundant Countries: Do They Have a Future? *World Development*, Volume 40, No. 4, pp. 701–714.
6. Demetriou D., Stillwell J., See L. (2013) A New Model for Measuring Land Fragmentation. *Computers, Environment and Urban Systems*, Volume 39, pp. 71-80.
7. Eurostat regional yearbook 2013. (2013). European Commission, 276 pp. Retrieved: <http://ec.europa.eu/eurostat/documents/3217494/5784301/KS-HA-13-001-EN.PDF>. Access: 17.01.2018.
8. FADN (2017). Pollumajandustootjate majandusnaitajad / FADN Farm Return 2016. Maamajanduse Infokeskus, Retrieved: <http://www.maainfo.ee/data/trykis/aastaraamat/FADN2016.pdf>. Access: 15.01.2018.
9. Lowder, S. K., Skoet, J., Raney, T. (2016). The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide. *World Development*, Volum 87, pp. 16–29.
10. Lund, P. and Price, R. (1998). The Measurement of Average Farm Size. *Journal of Agricultural Economics*, Volum 49, pp. 100-110.
11. MacDonald, J.M., Korb, P. and Hoppe, R. A. (2013). Farm Size and the Organization of U.S. Crop Farming, ERR-152. U.S. Department of Agriculture, Economic Research Service. Retrieved: https://www.ers.usda.gov/webdocs/publications/45108/39359_err152.pdf. Access: 9.01.2018.
12. Neuwirth, C., Hofer, B., Schaumberger, A. (2016) Object view in spatial system dynamics: a grassland farming example. *Journal of Spatial Science*, Volun 61, No. 2, pp. 367–388.
13. Pollumajandusloendus. 2010. Agricultural Census. (2012). Eesti Statistika, Statistics Estonia, p 96. Retrieved: https://www.stat.ee/valjaanne-2012_pollumajandusloendus-2010. Access: 15.01.2018.
14. Sikk, K., Maasikamae, S. (2015a) Spatial properties of large agricultural landholdings of Estonia. In: *Integrated and Sustainable Regional Development*, 38: International Conference "Economic Science for Rural Development", Jelgava, 23 - 24 April 2015. Jelgava, pp. 39–49.
15. Sikk, K., Maasikamae, S. (2015b) Impact of agricultural landholding size on the land fragmentation. In: *Annual 21st International Scientific Conference: "Research for Rural Development" Volume 2*, Jelgava, Latvia, 13-15 May 2015, pp. 301-306.
16. Van Dijk, T. (2003). Scenarios of Central European land fragmentation. *Land Use Policy* 20, pp. 149–158
17. Yee, J. and Ahearn, M. C. (2005). Government policies and farm size: does the size concept matter? *Applied Economics*, Volume 37, Issue 19, pp. 2231-2238.

THE IMPACT OF NATURA 2000 PROTECTED AREAS ON THE ECONOMIC DEVELOPMENT OF COMMUNITIES LOCATED WITHIN THE GREEN LUNGS OF POLAND (NORTH-EASTERN POLAND)

Antoni Mickiewicz¹, Bartosz Mickiewicz²,

¹Higher School of Agribusiness in Lomża; ²West Pomeranian University of Technology in Szczecin,
Faculty of Economics

Abstract: The paper presents possibilities of investments' realization in Natura 2000 areas in Poland and majors of Natura 2000 communes opinions about role of the network in socio-economic development of managed areas by them. It was focused on the presentation of legal possibilities of investment, by conducting analysis of conditions which potential investor is obeyed to fulfil in order to invest in those protected areas. Basing on typified to research communes with network Natura 2000, laid on area of Green Lungs of Poland, there were presented majors' opinions about restrictions and potential profits resulting from fact of Natura 2000 area possessing. It was underlined that most of inquired majors had declared that Natura 2000 areas in analysed communes had had limitations for inflow of investments and almost all of them had posited necessity of allocation of additional financial means by state budget in order to compensate for the effects resulting from Natura 2000 functioning in their areas.

Keywords: Natura 2000, investments, socio-economic development, Green Lungs of Poland.

JEL code: Q18

Introduction

Adopted in 1992, the Council Directive on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) was aimed to promote the maintenance of biodiversity, taking into consideration the economic, social, cultural and regional requirements. It is generally regarded as the cornerstone of nature conservation policy, and together with the Birds Directive it established the broad network of Natura 2000 protected areas to safeguard against potentially damaging developments. Thus, nature conservation is founded on two pillars: the Natura 2000 network and the system of strict protection of species. Overall, the directive extends protection to more than 1,000 of plant and animal species, as well as more than 200 so-called habitats (e.g. special types of forests, meadows, wetlands, bogs). The Birds and Habitats Directives have had to evolve to reflect the successive enlargements of the European Union, which led to the adoption of subsequent regulations (Coffey, Richartz 2003).

The objective of the EU Biodiversity Strategy has been to halt the loss of biodiversity and ecosystem services, as well as to aid in stopping biodiversity loss by 2020. It reflects the commitments made by the EU in 2010 within the framework of the international Convention on Biological Diversity. The Natura 2000 network is not a system of strict nature reserves, which would exclude all human activity. While it covers nature reserves under strict protection, most of the land remains in private hands. The approach to the protection and sustainable use of Natura 2000 sites is much broader and largely centred on people working with nature, rather than against it. However, it is up to the Member States to ensure that these areas are managed in a sustainable way, both ecologically and economically (Mehtata, Vuorisalo 2007).

One of such areas, unique on a European scale, is a region referred to as the Green Lungs of Poland (Zielone Płuca Polski, ZPP), which covers 63,235 km² – i.e. about 20 % of the country's territory. It is located in the north-eastern part of the country, covering the areas of Warmińsko-Mazurskie and Podlaskie voivodeships, as well as parts of Mazowieckie, Kujawsko-Pomorskie and Pomorskie voivodeships. In the era of ever-present globalisation and progressing homogenisation, areas of unique character, in terms of both natural and cultural environment, are becoming

¹Corresponding author. E-mail address: antoni.mickiewicz@zut.edu.pl

²Corresponding author. E-mail address: bartosz.mickiewicz@zut.edu.pl

increasingly important. The Green Lungs of Poland are definitely one such area. Its uniqueness is a value in and of itself, which needs to be protected, but also skilfully harnessed for the purposes of regional and local marketing. Many different forms of nature conservation are employed in the Green Lungs of Poland, for instance, there are 4 national parks, including Poland's largest Biebrza National Park, 243 nature reserves and 13 landscape parks (Kowalik 2006).

Protection under the Natura 2000 framework does not preclude economic use of land. Under the law, no particular restrictive or prescriptive regulations are made for Natura 2000 sites, unlike in the case of other forms of nature conservation, e.g. national parks. Protection of Natura 2000 sites involves primarily avoiding any actions which might significantly deteriorate the condition of natural habitats or habitats of plant and animal species, or significantly disturb the species for which a given Natura 2000 site has been designated. Each plan or project which may significantly interfere with the valuable sites included in the network must be subject to an assessment of impact on the conservation objectives and targets, as well as on the integrity of the site. Approval for actions which may adversely affect the site may be given only in strictly limited cases and on condition that the adverse effects are compensated for elsewhere, so that the conservation objectives and coherence of the network are maintained (Czochanski 2008).

Issues, purpose and scope of the study

People living in rural areas often tend to treat the Natura 2000 programme as an obstacle to socio-economic growth, mainly due to the restrictions on investments. It is generally believed that the establishment of "nature conservation areas" in a given community brings with it more negative than positive phenomena, including but not limited to:

- imposing extensive farming practices with regard to land and livestock and limiting the freedom of administering real estate;
- restricting or preventing business activities, both in terms of new investments and the expansion of existing enterprises;
- increasing the cost of new projects, e.g. related to road, energy, transmission infrastructure, through the necessity to implement various environmental safeguards;
- potential conflict with plans to develop tourism and leisure, e.g. collision of the river remediation programmes for tourism purposes with the requirements of the Natura 2000 framework;
- potential local conflicts due to compensatory claims proceedings (Mickiewicz, Mickiewicz 2016).

The objective of this study was to analyse the social understanding of the objectives of conservation areas and their impact on the economic potential of communities located within the "Green Lungs of Poland", as perceived by the representatives of local authorities. The research was carried out by the author himself in 2017 in 33 communities within the framework of a research programme implemented at the West Pomeranian University of Technology under the name "Socio-economic factors of the sustainable development of rural areas covered by the Natura 2000 network within the Green Lungs of Poland". In the course of the study, the questionnaire survey was the primary research method for collecting factual data. Supplementary methods employed interviews and direct observation, allowing for a more thorough exploration of research problems and yielding additional data, as well as review of research papers on the subject published in recent years in Poland and abroad.

¹Corresponding author. E-mail address: antoni.mickiewicz@zut.edu.pl

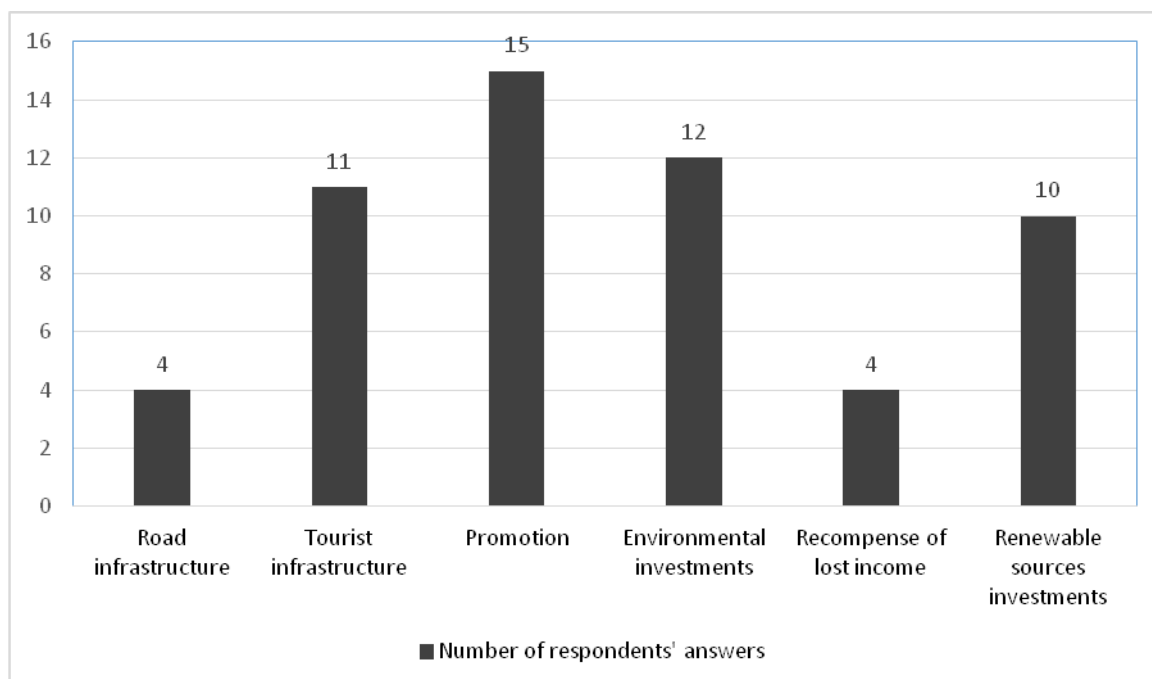
²Corresponding author. E-mail address: bartosz.mickiewicz@zut.edu.pl

Results and discussion

The fundamental question addressed by the study was how the Natura 2000 network affects the way communities function. Findings point to significant diversity. The establishment of this form of nature conservation, which took place in the communities included in the analysis in 2004–2015, was perceived as having both positive and negative aspects in 10 affected communities. In 13 communities, the perception of the network was unequivocally negative, while the remaining 10 did not observe any changes.

According to the heads of 19 communities included in the analysis, the fact that all or part of the area under their administration was included into the Natura 2000 network did not affect their financial situation. It should be noted, however, that the remaining 14 communities observed unfavourable phenomena related to the establishment of the new form of nature conservation. Community leaders listed among them: impeding economic growth (6 communities), declining interest in the purchase of land, declining industrial construction, reduced number of investments financed with the EU funds and mass withdrawal of investors (named by 2 communities each).

In connection with the above, the respondents were asked if their community should obtain additional financial resources to compensate for the losses (Fig. 1). The results show that only two community heads thought their communities should not be allocated any additional funds in compensation. The others (31 community heads and mayors) were of the opinion that such funds should be allocated, most of all for investments related to environmental protection. These included notably the construction of wastewater treatment plants and upgrading boiler stations (10 responses), obtaining alternative sources of energy (10 responses) and upgrading tourism infrastructure (11 responses). Nearly half of the respondents thought that additional funds should be allocated to the promotion of the community. Community representatives also believed it was essential to invest in upgrading road infrastructure (4 responses).



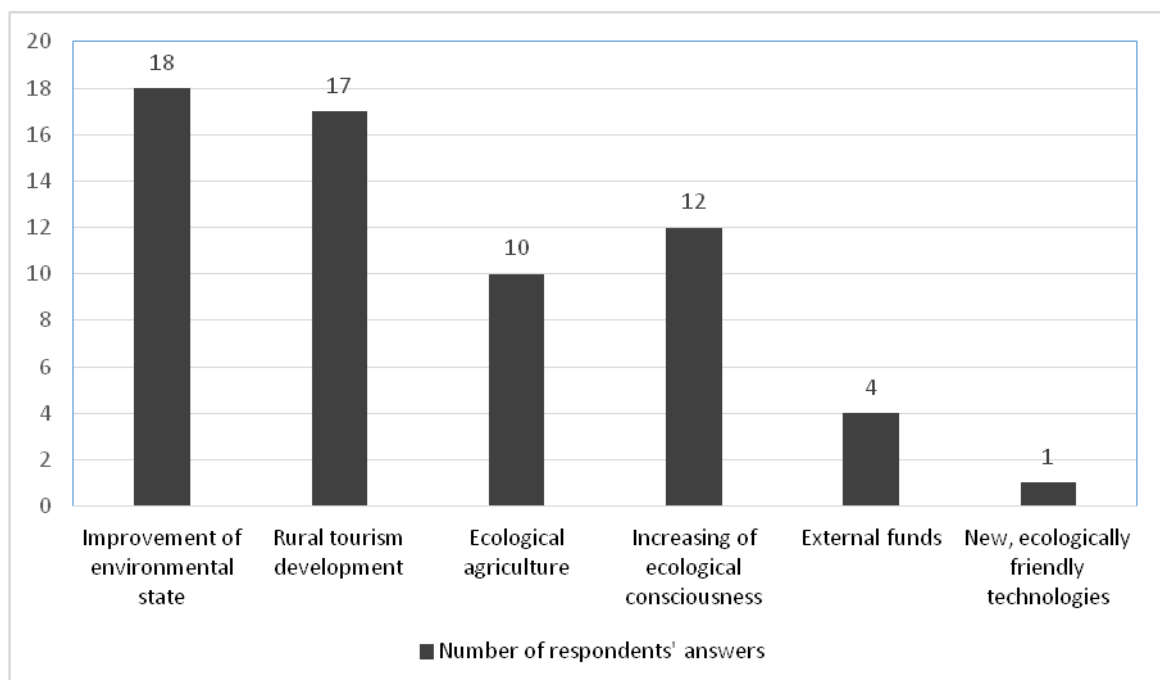
Source: authors' studies

Fig. 1. Spheres in which compensations for communes should be given because of their location in Nature 2000 areas

Interestingly, communities often assume hypothetically that investors back out due to concerns over the complicated procedures related to the location of the project within a Natura 2000 site. At the same time, they fail to objectively account for other reasons, such as, to name one, the absence of spatial development plans for sites of interest for the investors in the community.

A considerable percentage of local governments (22 communities) get involved in measures aimed at educating the local residents on issues central to the functioning of this form of protection. Most commonly, these measures involve meetings of local authorities with residents. This is particularly true of communities in which pro-environmental organisations are active. Still, it is worrying that nearly one third of community leaders declared they were not interested in information campaigns related to the Natura 2000 scheme. In such areas, residents are left to far from reliable sources to learn about protected areas. The prevailing opinion there is that nature conservation on such a scale is an "invention of Brussels bureaucrats", "harmful to the region", "a lot of nonsense, which is incompatible with the local reality" (Mickiewicz, Gotkiewicz, 2009).

As mentioned above, some local government representatives were able to perceive some positive aspects of being part of a Natura 2000 site. The advantages listed by the respondents included: improving the condition of the natural environment (18 communities), development of rural tourism (17 communities) and organic farming (10 communities). According to the representatives of local authorities (12 communities), greater environmental awareness among the residents was also important. To a lesser extent, the respondents mentioned easier access to external sources of financing (4 communities) and introduction of environment-friendly technologies in business (Fig. 2).

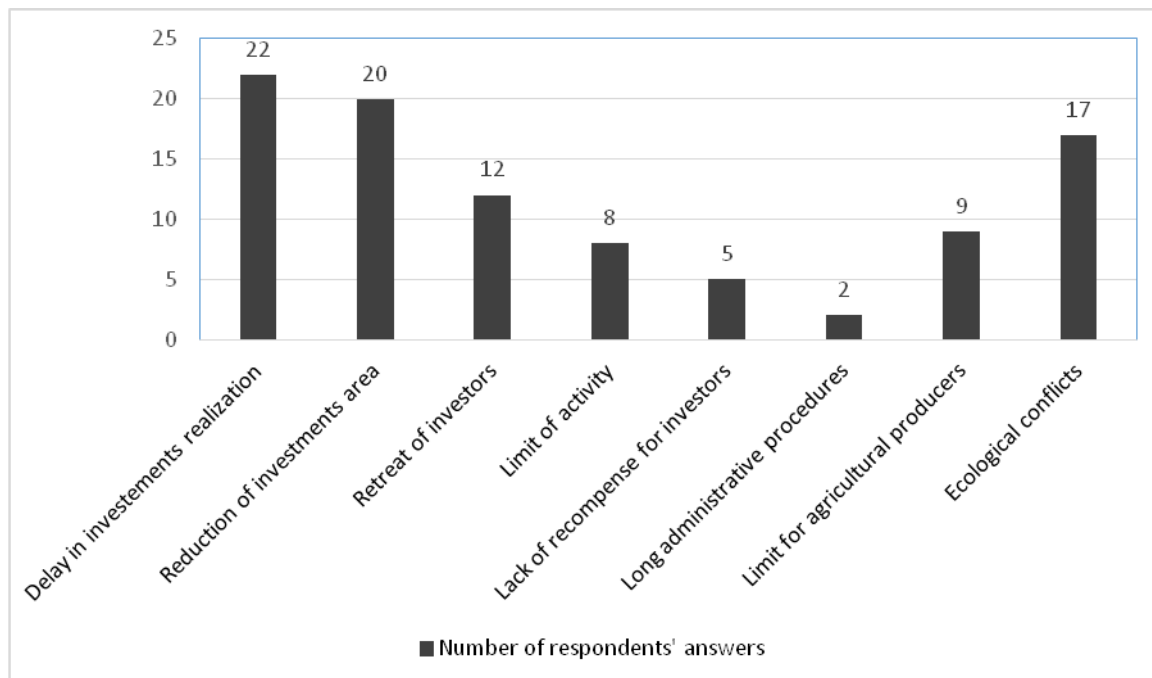


Source: authors' studies

Fig. 2. Positive aspects of introducing Natura 2000 areas into communes

Negative factors affecting the socio-economic situation in the community were mentioned far more often. Representatives of local authorities noted difficulties and delays in planning and implementing public investments (22 communities) and the necessity to adjust or reduce the size of investment sites (20 communities). Further unfavourable factors included: withdrawal of

potential investors (12 communities), necessity to reduce the scale of operations or change business profile (8 communities), lack of compensation for lost gains (5 communities) and prolonging administrative procedures (2 communities). Respondents also emphasised restrictions on agricultural activities (9) and exacerbation of social conflicts over environmental protection (17 responses) (Fig. 3).



Source: authors' studies

Fig. 3. **Negative aspects of Natura 2000 areas introduced into communes**

The last issue addressed in this part of the study concerned the impact of the Natura 2000 network on the two largest occupational groups active in the communities – farmers and rural entrepreneurs. In the case of the former, 12 community heads were not able to provide a straightforward answer whether the new form of environmental protection had an impact on farming activities. The rest assessed the impact of the network as negative (10 respondents), or less often as positive (9). It should be noted that only 2 community heads declared that Natura 2000 is of no relevance for farmers. Turning to the impact of Natura 2000 sites on the businesses operating within the community, 10 local government representatives declared that the presence of protected areas had a positive impact, however, this applied only to businesses from the tourism sector. The others viewed the impact as negative (12 responses) or neutral (11).

Conclusions

The establishment of Natura 2000 sites was an important undertaking, particularly from the environmentalist point of view. It provided a guarantee that natural habitats and valuable natural resources will be maintained. It is commonly believed, however, that this form of nature conservation has a negative impact on social and economic development of rural areas. This study shows that such an opinion is not fully justified, even in communities where a significant percentage of land was placed under protection. The present findings reveal that only one third of local government representatives observed negative consequences of the Natura 2000 scheme on the development of areas under their administration. In the remaining communities, the network was perceived to have a neutral or positive impact. The same applies to the impact of

¹Corresponding author. E-mail address: antoni.mickiewicz@zut.edu.pl

²Corresponding author. E-mail address: bartosz.mickiewicz@zut.edu.pl

Natura 2000 on the functioning of two most numerous occupational groups in rural areas (farmers and owners of small and medium-sized enterprises). Thus, one might venture a conclusion that the negative impact of Natura 2000 on local communities should be regarded in the context of individual, specific cases, rather than as a general trend. In some cases, there is also an impression that the legal protection of Natura 2000 sites serves as a convenient excuse for ineptitude or lack of own initiative in local governments themselves.

Bibliography

1. Coffey, C., Richartz, S. *The EU Habitats Directive, Generating Strong Responses*, Institute for European Environmental Policy (2013). Project Deliverable No. D 17, pp. 1-26
2. Czochanski, J. *Obszary Europejskiej sieci ekologicznej NATURA 2000 w województwie pomorskim (Areas of European Ecological Network NATURE 2000 in Pomeranian province)*. Instytut Geografii. (2008). Uniwersytet Gdański, pp. 129-137
3. Kowalik, T. *Zielone Płuca Polski: dobre skutki w ciągu 23 lat (Green Lungs of Poland: good effects after 23 years)*. *Aura*. (2016), nr 8, pp. 7-9
4. Mehtata, J., Vuorisalo, T. *Conservation Policy and the EU Habitats Directive: Favourable Conservation Status as a Measure of Conservation Success*. *Environmental Policy and Governance* (2007). Volume 17, Issue 6, pp. 363-375
Mickiewicz B., Gotkiewicz W. *Analiza strategii rozwoju wybranych gmin objętych siecią „NATURA 2000” położonych na terenie Zielonych Płuc Polski (Analyses of chosen communes development strategies with NATURE 2000 located on the area of Green Lungs of Poland)*. Zachodniopomorski Uniwersytet Technologiczny w Szczecinie (2009), pp. 131-140

EMPLOYMENT AND WAGES IN FISHERIES OF THE BALTIC RIM COUNTRIES

Bartosz Mickiewicz¹, Wojciech Brocki²

¹West Pomeranian University of Technology in Szczecin, Faculty of Economics;

²West Pomeranian University of Technology in Szczecin, Faculty of Food Science and Fisheries

Abstract. There was employed 12.4 thousand sea fishermen in the Baltic Sea basin countries in 2014. They were only 0.02 % of the total number of employees. The biggest number of fishermen was in Poland - 2.5 thousand people (0.02 %). However, the largest share in fishermen's general employment took place in Estonia, where it amounted to 0.37 % (2.3 thousand fishermen). Employment in the Baltic fisheries has been declining due to the deteriorating state of fish stocks, which affects the reduction of fishing fleets in individual countries. Wages in the Baltic fisheries mainly depend on the form of fishing activity and the level of economic development in individual countries. The highest level was achieved in the "old countries" of the European Union and in the open sea fishery. On the other hand, the lowest earnings were in coastal fishing and the "new countries" of the European Union.

Key words: Baltic Sea, fisheries, employment, wages.

Jel code: Q18

Introduction

Labour, next to capital and knowledge, constitutes a significant factor of production. The relative importance of these factors usually depends of the specifics of the given business. Fishing, pursued from the dawn of humanity, remains one of the traditional and highly labour-intensive forms of human economic activity. Fishing may provide a significant source of income for local seaside communities. It relies on the extraction of living resources: fish, molluscs, crustaceans etc. from bodies of water. The Baltic is a small, epicontinental sea, sensitive to human activities and phenomena such as the lack of intrusions from the North Sea or the rise of sea temperature due to global warming. The status of fish stocks in the Baltic Sea is catastrophic. Three countries of the Baltic Rim (Denmark, Germany and Sweden), thanks to having additional access to the fish-rich North Sea, are able to maintain the historic role of fisheries in their economies.

The aim of the study was to present the scale of employment and salaries in fishery of the Baltic Sea countries with special regards to economic indicators from Poland and Latvia. In the paper, there were used methods of induction in order to draw general conclusions from individual observations and synthesis with deduction for achievement of output of the known and already proven general theorems. The elaboration is mainly based on the European legislation, regulating the fishery in the Baltic Sea, Eurostat materials and data gained from STECF-Scientific, Technical and Economic Committee for Fisheries as well as the report of the Commission for the EP and the Council. All research analyses were done by the authors in 2017.

Research about the employment of Baltic fishermen takes on significance due to the progressing marginalization of fisheries. This makes the necessity to create new jobs for workers leaving the fishery. It plays an important role in regions heavily dependent on fisheries, which require additional financial support. Therefore, in the article there is used the method of comparative analysis, which allows to study changes in employment and wages of fishermen in all countries of the Baltic Sea basin and compare them to the EU average.

Research results and discussion

In 2014, the Member States of the European Union were inhabited by 499 million people, of whom 218 million (44 %) were in work. Out of all the people in employment, only as few as 149.000 (0.07 %) were total employed fishermen, including full-time and part-time employment

(tab. 1). There are countries and regions (Spain, Italy, Greece and Portugal) where the fishing sector employs half of all the people employed in the coastal zone. The employed in the above-mentioned countries constitute about 70 % of the headcount in the fisheries sector in the EU (Wspolna, 2016).

Table 1.

**Percentage of fishermen in employment in the Baltic Rim countries
in 2014 (in thousands)**

Country	Population	Employment	Fishermen	Share of fishermen employed in total (%)
Denmark	5 638	2714	1.1	0.04
Estonia	1 311	625	2.3	0.37
Finland	4 615	1914	1.8	0.09
Lithuania	2 934	1319	0.9	0.05
Latvia	1 968	885	0.7	0.08
Germany	80 016	39871	1.6	0.00
Poland	36 512	15862	2.5	0.02
Sweden	9 551	4772	1.5	0,03
Old EU B.c.	99820	49271	6.0	0.01
New EU B.c.	42745	18691	6.4	0.03
Baltic total	142565	67962	12.4	0.02
EU	498 725	217710	148.7	0.07

Old EU BCs – countries of the Baltic Rim which belonged to the EU prior to the 2004 enlargement

New EU BCs – countries of the Baltic Rim which joined the EU in 2004

STECF – Scientific, Technical and Economic Committee for Fisheries

Source: authors' elaboration based on STECF and Eurostat materials

In the countries of the Baltic Rim, fishermen account for a smaller percentage in total employed population than the EU average. In the Baltic countries of the old EU, this percentage amounted to 0.01 % in 2014, and in the new EU (Member States as of 2004) – 0.03 %. There were three countries where the percentage of fishermen exceeded the EU average, in Estonia by a large margin, reaching 0.37 %, while in Finland it amounted to 0.09 %. Latvia was the last country where fishermen accounted for a higher percentage of employment than the EU average, with 0.08 %; in Lithuania it was marginally lower, 0.05 %; in Denmark 0.04 %. In Sweden and Poland, the percentage was 0.03 % and 0.02 % respectively, and in Germany it was close to 0 %. Characteristically, the percentage of fishermen in total employment tended to be higher in countries where a larger share of the coastal population lived up to 50 km from the seashore, as shown in Table 2. In Germany (0 %), Poland (0.02 %) and Sweden (0.03 %) the percentage of the population inhabiting seaside areas within 50 km from the seashore was the lowest, respectively: 64 %, 72 % and 79 %. These countries are characterised by the largest territory, which seems to be the explanation. Understandably, the coastal zones tend to rely on fishing to the greatest extent, and it is normal for employment in fisheries to increase the closer to the coast one gets.

Table 2.

Percentage of the population inhabiting coastal zones of seaside regions in the Baltic Rim countries in 2014 (%)

	5 km from the shore	15 km from the shore	50 km from the shore	Fishermen's participation in employment
Denmark	50	81	99	0.04
Estonia	51	73	94	0.37
Finland	43	65	86	0.09
Lithuania	23	46	64	0.00
Latvia	46	61	89	0.08
Germany	18	49	88	0.05
Poland	17	40	72	0.02
Sweden	40	62	79	0.03

Source: authors' elaboration based on STECF and Eurostat materials

Employment in fisheries of the Baltic Rim countries

In the European Union, as well as in the Baltic Rim (eight EU Member States), employment in the fishing sector (fish taking, aquaculture and fish processing) plays an important role in regions where it is hard to find alternative sources of employment. In these areas, which are usually not far from the coastline, fisheries also generate other jobs: port services, ship building and repair, storage and trade, manufacturing and repair of fishing equipment. Heavy dependence on fishing tends to occur in regions or small countries with small populations, and by no means does it translate into high numbers of fishermen. Dependence on fishing is determined not by the number of fishermen as such, but rather by the percentage of the total labour force they account for.

In 2014, the highest number of total employed fishermen, including full-time and part-time employment, was found in Poland: 2.700 (including 180 fishermen in distant-water fishing), accounting nevertheless for as little as 0.02 % of total employment. Estonia, the most fishing-dependent country of the Baltic Rim, was rather unique, because in this small country with a population of 1.3 million, there were 2.100 employed fishermen, which placed it second among the countries of the Baltic Rim in this regard. Finland was third, with 1.800 employed fishermen. It was followed by Germany and Sweden with 1.600 total employed fishermen in each, Denmark with 1.400, Lithuania with 700 and Latvia 600.

Fisheries, relying on the extraction of living resources, depend heavily on natural conditions, including weather and biological factors, as a result of which production is seasonal. Moreover, it is subject to legal restrictions as to the time and place of fish taking, and finally – catch limits. All of these have a major impact on the quantity and forms of employment. In the countries of the Baltic Rim, fishermen can find employment in various forms of fisheries activity: inshore (coastal), offshore (also going out to open sea) and distant-water fleet. Some fishermen are employed full-time; others find seasonal employment and often rely on other sources of income. The percentages between the two groups vary in individual countries and forms of fisheries activity, as presented in Tables 3 and 4. Where the risk is the highest and so is the related uncertainty, i.e. in coastal fishing, the difference between the total number of employed fishermen and the number of full-time employees is the greatest. This is due to the risk, which affects the employer and the employees alike. The threats are related both to the nature of the job and economic issues. Offshore fishing operations, which are also conducted in the open sea, are more regular and at the same time more flexible, and thus the disproportions between the total number of employed

fishermen and the number of full-time employees are smaller. Distant-water fishing does not play an important role, as according to EU statistics it employs 180 people in Poland and 460 people in Lithuania. Remote seas, far away from the Baltic Sea, where these fishermen operate, are not the topic of these considerations.

Table 3.

Total employed fishermen in the Baltic Rim countries in 2008–2014

	SSF							%	14:08 %
	2008	2009	2010	2011	2012	2013	2014		
Denmark	420	378	333	342	345	362	307	24 %	73 %
Estonia	2 727	1 646	1 721	1 777	1 858	1 865	2 100	91 %	77 %
Finland	1 486	1 465	1 560	1 589	1 729	1 674	1 674	92 %	113 %
Lithuania	370	158	152	154	149	140	134	18 %	36 %
Latvia	992	1 110	1 175	321	258	327	367	48 %	37 %
Germany	1 031	559	847	869	876	777	763	47 %	74 %
Poland	1 379	1 154	1 121	1 163	1 271	1 290	1 390	53 %	101 %
Sweden	1 073	929	951	925	920	902	902	57 %	84 %
Old EU B.c.	4 010	3 331	3 691	3 725	3 870	3 715	3 646	60 %	91 %
New EU B.c.	5 468	4 068	4 169	3 415	3 536	3 622	3 991	63 %	73 %
Baltic total	9 478	7 399	7 860	7 140	7 406	7 337	7 637	61 %	81 %
EU	55 666	56 515	60 406	56 323	81 165	73 949	91 116	52 %	164 %
	LSF							%	14:08 %
	2008	2009	2010	2011	2012	2013	2014		
Denmark	1 380	1 317	1 195	1 119	1 127	1 127	807	76 %	58 %
Estonia	275	253	227	216	188	181	180	9 %	65 %
Finland	127	144	143	133	136	143	148	8 %	117 %
Lithuania	132	240	228	231	228	265	258	35 %	195 %
Latvia	629	556	444	391	385	353	339	52 %	54 %
Germany	1 037	970	897	770	876	870	875	53 %	84 %
Poland	1 377	1 088	1 043	978	1 053	960	903	40 %	66 %
Sweden	907	829	813	754	743	675	641	43 %	71 %
Old EU B.c.	3 451	3 260	3 048	2 776	2 882	2 815	2 471	40 %	72 %
New EU B.c.	2 413	2 137	1 942	1 816	1 854	1 759	1 680	27 %	70 %
Baltic total	5 864	5 397	4 990	4 592	4 736	4 574	4 151	33 %	71 %
EU	66 131	68 708	65 500	66 032	73 928	69 277	75 488	44 %	114 %

Source: authors' elaboration based on STECF materials

In 2014, the highest number of total employed fishermen in inshore fishing (SSF –Small Scale Fisheries) worked in Estonia 2100, Finland 1674 and Poland 1390, whereas the lowest numbers were found in Lithuania 134, Denmark 307 and Latvia 367. The greatest proportion of total employed fishermen in inshore fishing to the total employed fishermen was noted in Finland 92 %, Estonia 91 % and Sweden 57 %, while the smallest in Lithuania 18 %, Denmark 24 % and in Germany 47 %. In Poland, it amounted to 53 %, and in Latvia 48 %. For the whole EU, the percentage amounted to 52 %, that is 91,000 fishermen. In 2008–2014, the total number of employed fishermen went up only in Finland (by 13 %) and in Poland (by 1 %). In the other countries the numbers were down, with a nearly threefold drop in Lithuania and Latvia. The highest number of fishermen in full-time employment in inshore fishing could be found in Germany 626

(47 %), Poland 542 (33 %), Sweden 335 (36 %) and in Estonia 333 (66 %), and the lowest in Lithuania 44 (8 %), Denmark 225 (14 %), Finland 231 (71 %) and Latvia 255 (55 %). The figures in brackets represent the share in the entire fishermen community in full-time employment in the given country. Only in Finland (by 30 %) and in Poland (by 24 %) did the number of inshore fishermen in permanent employment go up in 2008–2014. In Lithuania, the headcount decreased fivefold, and in other countries by 20–40 %. Full-time employees accounted for the highest percentage of all employees in Germany 80 %, Denmark 73 % and in Latvia 69 %, and the lowest in Finland 14 %, Estonia 16 % and Lithuania 33 %. In Poland, the ratio was 40 %, and in Sweden 37 %.

Table 4.

Fishermen in full-time employment in the Baltic Rim countries in 2008–2014

	SSF							%	14:08 %
	2008	2009	2010	2011	2012	2013	2014		
Denmark	379	319	281	276	252	239	225	14 %	59 %
Estonia	-	-	309	320	362	339	333	66 %	
Finland	178	135	220	216	238	258	231	71 %	130 %
Lithuania	208	55	49	37	49	39	44	8 %	21 %
Latvia	373	329	329	202	154	229	255	55 %	68 %
Germany	790	464	654	664	668	597	626	47 %	79 %
Poland	436	424	419	449	482	515	542	33 %	124 %
Sweden	470	383	384	367	340	321	335	36 %	71 %
Old EU B.c.	1817	1301	1539	1523	1498	1415	1417	35 %	78 %
New EU B.c	1017	808	1106	1008	1047	1122	1174	41 %	115 %
Baltic total	2834	2109	2645	2531	2545	2537	2591	37 %	91 %
EU	29 201	30 471	33 108	30 401	49 060	46 436	60 565	45 %	207 %
	LSF							%	14:08 %
	2008	2009	2010	2011	2012	2013	2014		
Denmark	1682	1535	1523	1385	1307	1413	1394	86 %	83 %
Estonia	255	240	212	204	178	175	181	34 %	71 %
Finland	86	94	93	108	108	103	114	29 %	133 %
Lithuania	87	175	155	169	162	156	123	32 %	141 %
Latvia	291	219	192	176	199	186	170	45 %	58 %
Germany	825	774	711	594	704	684	659	53 %	80 %
Poland	995	890	815	792	990	928	841	59 %	85 %
Sweden	663	636	606	606	602	565	516	64 %	78 %
Old EU B.c.	3256	3039	2933	2693	2721	2765	2683	65 %	82 %
New EU B.c	1628	1524	1374	1341	1529	1445	1315	46 %	81 %
Baltic total	4884	4563	4307	4034	4250	4210	3998	58 %	82 %
EU	57665	60953	55729	55859	61493	57134	64269	49 %	111 %

Source: authors' elaboration based on STECF materials

The data quoted above point to a strong dependency in Estonia and Finland on coastal fishing, as these countries catch fish nearly exclusively in the Baltic Sea.

In 2014, the highest number of total employed fishermen in offshore fishing (LSF –Large Scale Fisheries) among the Baltic Rim countries worked in Poland 903 (40 %), Germany 875 (53 %), Denmark 807 (76 %) and in Sweden 641 (43 %), while the lowest numbers were found in Finland 148 (8 %), Estonia 180 (7 %), Lithuania 258 (35 %) and Latvia 339 (52 %). The figures in brackets reflect the percentages of those employed in offshore fishing in the total number of fishermen in employment (inshore, offshore and distant-water fleet). In 2008–2013, the number of

offshore fishermen employed overall increased only in Lithuania (by 95 %) and Finland (by 17 %). In Germany, their number went down by 16 % and in other countries by 28–45 %. Turning to the data on offshore fishermen in full-time employment in Denmark, numbers have for years shown that their number is higher than the total number of offshore fishermen employed. In 2014, they numbered 1394, which means that there were 70 % more offshore fishermen in full-time employment than the total employed. They accounted for 86 % of all Danish fishermen employed full-time. Poland came second with 841 (59 %), followed by Germany 659 (53 %), and Sweden 516 (64 %). In the remaining countries, there were fewer than 200 individuals employed full-time in offshore fisheries. Similar to the total employed number, the number of fishermen employed full-time went up in 2008–2014 only in Lithuania (by 41 %) and Finland (by 33 %). The ratio of full-time employed to total employed reached 100 % in Estonia, 93 % in Poland, 80 % in Sweden, 77 % in Finland, 75 % in Germany, and about 50 % in Lithuania and Latvia. Employment levels in offshore fisheries in the countries of the Baltic Rim correspond to the capacity of the fleets and volumes of catch in these countries. It is worth noting, however, that a major share of the fishing operations of Denmark and Germany take place in the North Sea.

It can be assumed that the smallest disproportions between the numbers of total employed and full-time employed tend to occur in two situations. First, where good economic performance provides for economic security of employees, and second – the regulations on employment are strict.

Wages and employment in fisheries of the Baltic Rim countries

The issue of pay in fisheries is not completely clear. At the highest level of aggregation, data are usually presented as labour costs, while many statistics mention two data categories: crew wages and unpaid labour. Implicitly, it may be assumed that the latter covers the work performed by family members of the fishermen, the volume of which is estimated, seen as figures are not available in any statistics. A lion's share of the work is performed by family members, mainly women, involved in the running of family businesses and doing jobs like: office work, selling fish, cleaning fishing vessels, mending fishing nets and hook lines, as well as other onshore jobs (Women, 2013). Women and other family members are regarded as the invisible crew members, who make a considerable contribution of the functioning of the economic sector, but it is not reflected in remuneration (Marciniak, 2010). The amounts at stake are substantial, in 2014 wages and salaries in EU fisheries totalled EUR 1.523 billion, and the value of unpaid labour was estimated at EUR 125 million.

In the Baltic Rim countries, there are two factors at play that differentiate pay levels. The first one is the level of economic development; in the old EU Member States wages and salaries are much higher than in the new Member States to the Union. The other factor is the form of fishing activity. In inshore fishing, wages tends to be lower than in offshore fishing, which is understandable and seen as the latter is more profitable. One could liken this to the difference between a smallholder and a large-scale agricultural enterprise. Both are needed in the society, but as they deliver different products, they create different added values. The average wages in the fisheries of the Baltic Rim countries is presented in Table 5.

In 2014, in inshore fisheries the highest earnings were found in Denmark with EUR 59.200 per year, Sweden EUR 26.600, and Finland EUR 21.800, contrasting with the lowest average pay in Latvia of EUR 400. In Germany, Estonia and Lithuania, earnings were in the range of EUR 4–

5 thousand. In Poland, the average wage amounted to EUR 9.800. In Lithuania, in 2008–2016 there was a remarkable fourfold increase in average pay, which may be assumed to result from a reduction in employment, which was of a similar scale. A significant growth in average wage was observed in Poland. It amounted to 67 %, and was accompanied by a 24 % increase in full-time employment. In Finland and Latvia, the drop in headcount coincided with a drop in average earnings.

In 2014, in offshore fisheries of the Baltic Rim countries the highest earnings were found, again, in Denmark – EUR 69.700, German fishermen earned EUR 63.000, Finnish - EUR 55.000 and Swedish - EUR 36.700 (the old EU). Among the new Member States of the EU, the top-paid fishermen were Estonian with EUR 16.800, Latvian - EUR 18.300, Polish - EUR 11.700, while Lithuanian fishermen earned the least, with EUR 8,700. In 2008–2014, earnings went down in three countries: Estonia (8 %) and Finland (18 %), while the most drastic drop was observed in Lithuania (55 %). In the remaining countries, earnings went up by 4–31 %.

Table 5.

Average wage in fisheries of the Baltic Rim countries according to the form of fishing activity in 2008–2014 (constant price terms of 2014)

	SSF							Average 08-14	14:8 %
	2008	2009	2010	2011	2012	2013	2014		
Denmark	54.7	54.1	55.0	53.0	55.3	57.9	59.2	55,6	108 %
Estonia	-	-	3.7	3.8	3.8	4.6	5	4.2	
Finland	22.5	36.5	17.4	18.5	23.3	16.7	17.9	21.8	80 %
Lithuania	1.3	2.7	3.4	6.4	3.9	4.5	5.5	4.0	423 %
Latvia	0.5	0.5	0.3	0.5	0.6	0.3	0.4	0.4	80 %
Germany	4.1	7.7	3.7	4.2	4.4	5.3	4.5	4.8	110 %
Poland	7.1	5.9	8.7	9.8	11.8	13.0	12.0	9.8	169 %
Sweden	22.9	22.4	25.2	27.1	28.7	30.7	29.2	26.6	128 %
Old EU B.c.	26.1	30.2	25.3	25.7	27.9	27.7	27.7	27.2	106 %
New EU B.c.	3.0	3.0	4.0	5.1	5.0	5.6	5.7	4.5	193 %
Baltic total	16.2	18.5	14.7	15.4	16.5	16.6	16.7	16.4	103 %
	LSF							Average 08-14	14:8 %
	2008	2009	2010	2011	2012	2013	2014		
Denmark	66.9	64.5	73.1	74.8	70.7	68.0	69.7	69.7	104 %
Estonia	18.2	18.2	19.2	18.0	21.2	19.9	16.8	18.8	92 %
Finland	67.4	61.2	37.3	45.5	47.9	54.4	55.0	52.7	82 %
Lithuania	17.6	6.7	7.0	6.7	6.6	8.1	7.9	8.7	45 %
Latvia	15.0	15.3	17.6	18.8	19.0	22.5	19.6	18.3	131 %
Germany	51,3	57.9	65.2	71.0	67.4	63.8	64.3	63.0	125 %
Poland	11.2	9.2	11.3	11.8	11.3	15.0	11.8	11.7	105 %
Sweden	29.0	27.4	31.6	31.6	34.5	41.6	36.7	33.2	127 %
Old EU B.c.	53.7	52.8	51.8	55.7	55.1	57.0	56.4	54.6	105 %
New EU B.c.	15.5	12.4	13.8	13.8	14.5	16.4	14.0	14.3	90 %
Baltic total	34,6	32.6	32.8	34.8	34.8	36.7	35.2	34.5	102 %

Source: authors' elaboration based on STECF materials

The comparison of earnings according to the form of fishing activity goes to the conclusion that the remuneration paid in offshore fisheries provide for at least a basic standard of living in all the countries included in the analysis. In Denmark, Germany, Finland and Poland, wages can even be

described as good. In inshore fishing, this condition is fulfilled in the case of Denmark, Estonia, Latvia and Poland. In Sweden and Finland, average fisherman wage, as listed above, is only enough to survive (subsistence). In turn, the pay levels in Germany and Lithuania are not enough to meet basic needs. This implies that earnings from inshore fishing in these countries are merely a supplement to income from other sources. High wage levels in the fishery sector in Denmark (inshore and offshore) and Germany (offshore) can be explained by the expansion of their fisheries into the waters of the North Sea. It can be assumed that high earnings in the offshore fisheries of Finland are associated with the considerable financial input from industrial fishing. These operations do not require a lot of manpower due to the low labour-intensity and mechanised nature. In 2008-2014, full-time employment in offshore fishing in Finland increased by 33 %, which made for stable growth in this form of fish catching.

The comparison of the Baltic Sea with other fishing regions is presented in Table 6. The picture it paints is rather dark. The Baltic and the Mediterranean Sea have the lowest wages levels out of all the fishing regions of the EU in 2014, amounting to about EUR 14.000. It is most likely due to the greatest relative share of inshore, small-scale fishing in both these regions. Baltic fisheries came third last, before Outer Regions and the Mediterranean Sea, in terms of the gross value added per full-time employee. The Baltic Sea and Outer Regions were characterised by the lowest employment per vessel. An opinion on this topic was offered above.

Table 6.

Employment and pay in EU fishing regions in 2014

	Estimated employment	Estimated FTE	Labour costs (thousands euros)	Average FTE pay (thousands)	GVA / FTE (thousand euros)	Number of vessels	Employed / ship	FTE / ship
Baltic	9453	5076	71692	14,1	24,1	6491	1,5	0,8
Mediterranean and Black Sea	46791	33419	459493	13,7	20,7	20838	2,2	1,6
North-east. Atlantic	48338	32750	907556	27,7	33,6	18323	2,6	1,8
North Sea	11274	8676	432350	49,8	87,8	5087	2,2	1,7
Other regions	6334	6970	183262	26,3	68,2	806	7,9	8,6
External regions	2736	2080	35663	17,1	19,7	2574	1,1	0,8
North-west. Atlantic	716	659	26686	40,5	49,7	168	4,3	3,9
Eastern Arctic	321	311	18731	60,2	272,8	31	10,4	10,0
The Mediterranean, not the EU	52	52	3342	64,3	469,4	12	4,3	4,3
EU regions -total	126167	90009	2145293	23,8	1039,0	54348	2,3	1,7

Source: Own elaboration based on STECF materials

The employment of fishermen is not the only form of employment related to the acquisition of fish for food and non-food purposes. The employment in aquaculture and fish processing also needs to be mentioned. In 2012, in Poland there were 5.600 people employed in aquaculture, and 16.000 people in fish processing. Denmark, Finland and Sweden employed some 400 people in aquaculture each. The German fish processing sector employed 7.000 people, Latvian – 6.000, Lithuanian – 4.500, Swedish – 2.100, Estonian – 1.900, and Finnish - 900 people (Wspolna, 2016).

Conclusions

- 1) There are two forms of fishing activity in the Baltic Sea: inshore and offshore. On the whole, inshore fisheries are a loss-making endeavour, while offshore fisheries generate modest profits.
- 2) Due to the poor condition of fish stocks, maintaining fisheries in the Baltic Sea is a dramatic struggle. As a result, a decline in overall employment in the Baltic Rim fisheries may be observed, in inshore fishing (except for Finland and Poland) and also in offshore fishing (except for Finland and Lithuania).
- 3) Fishermen's earnings in the countries of the Baltic Rim went up by as little as 2–3 % in nominal terms in 2008–2014, so taking into account inflation – they decreased in real terms.
- 4) Wage is higher in offshore fishing than in inshore fishing, which is exposed to more operational risks because of operating on a smaller area and being more sensitive to weather conditions. It is assumed that offshore fishermen's earnings are sufficient to live relatively comfortably, while inshore fishermen are forced to rely on additional income from jobs in other sectors of the economy. Their wage is one of the lowest of all the fishing regions of the European Union.

Bibliography

1. EUROSTAT (2017), <http://ec.europa.eu/eurostat/data/database>, accessed 21.12.2017.
2. Marciniak, B. *Invisible Crew Members – Women: Mothers, Wives, and Daughters of Fishermen*. *Annals of Marine Sociology* (2010), volume XIX, PAN, Szczecin, pp. 23-35
3. *Report to the STECF*, Expert Working Group of the 2016 Annual Economic Report on the EU Fishing Fleet 92016), EWG-16-03&16-07, ISPRA, ITALY, 25-29 April& Dublin, Ireland, 6-10 June 2016, pp. 101-168
4. *Scientific, Technical and Economic Committee for Fisheries (STECF)*, The 2014 Annual Economic Report on the EU Fishing Fleet (STECF-14-16) (2014), Publications Office of the European Union, Luxembourg, EUR 26901 EN, JRC 92507, p. 363
5. *Scientific, Technical and Economic Committee for Fisheries (STECF)*, The 2015 Annual Economic Report on the EU Fishing Fleet (STECF-15-07) (2015), Publications Office of the European Union, Luxembourg, EUR XXXX EN, JRC XXX, p. 434.
6. *Scientific, Technical and Economic Committee for Fisheries (STECF)*, The 2016 Annual Economic Report on the EU Fishing Fleet (STECF-16-11) (2016), Publications Office of the European Union, Luxembourg, ISBN 978-92-79-64633-1; doi:10.2788/84267, p. 571
7. *Women in Fisheries*, A European Perspective, Directorate-general for Internal Policies Policy Department b: structural and cohesion policies, IP/B/PECH/IC/2013-048 July 2013. (2013), <https://webgate.ec.europa.eu/fpfis/cms/farnet/files/documents/Women-in-fisheries-EN.pdf>, accessed 11.11.2017.
8. *Wspólna polityka rybołówstwa: powstanie i rozwój (Common fishery policy: genesis and development)*, (2016), http://www.europarl.europa.eu/atyourservice/pl/displayFtu.html?ftuId=FTU_3.3.1.html, accessed 12.11.2017.

EVALUATION OF EMAS SYSTEM FUNCTIONING IN PRIVATE SECTOR UNITS, DCT GDANSK INCLUDED

Janusz Myszczyzyn¹, PhD

¹West Pomeranian University of Technology, Faculty of Economics

Abstract. Despite the growing awareness of societies and the plurality of the ideas of sustainable development, this vision has been still insufficiently introduced into life in many aspects.

The EMAS system, which promotes actions in the sphere of environmental protection to a greater extent than ISO standards, continuous planning of new actions for pro-ecological investments included, can make up an example. Still, the EMAS system is not popular enough, neither in most EU Member States nor in other countries around the world.

Between 2010 and 2016 in Poland, an increased interest in the EMAS system could be noticed but now, a kind of stagnation can be observed. Some entities resign from further taking part in the system, and new ones are far from being numerous. The participation in the system seems not attractive enough from the perspective of private sector entities, which is confirmed by the survey carried out by the author. Despite this, for 93 % of private sector companies surveyed, the EMAS system positively affects the image of the organization rather than the economic effects. This may be signalling some necessary changes in the principles of this system operation.

Key words: Eco-Management and Audit Scheme (EMAS), sustainable development, management system, environmental protection, private sector organizations.

JEL code: Q01, Q56

Introduction

Despite the fact that economic development in the world today is positive in many ways, on the back of this development, in combination with the growing population, is increasing the negative impact on our environment. Further negative effects on the environment must be significantly reduced in order to ensure sustainable development. The use of environmental management systems is an effective tool for the promotion of sustainable development in society.

The role of the private sector in ensuring sustainable development is shown by Development Co-operation Report 2016: the United Nations General Assembly adopted the universal 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs). These goals we need to ensure prosperity and equity for all. To achieve these goals, the participation of the private sector is essential. The private sector can be a powerful actor in promoting sustainable development in ways that go far beyond funding (Development Co-operation Report 2016). Over 70 % of goods in the world are produced by entities referred to as private sector. It is impossible to build a "green economy" without an active participation of private enterprises (Ostrowiecki, 2015).

Standardised environmental management systems, such as ISO 14001, Eco-Management and Audit Scheme (EMAS), and quality systems such as ISO 9001 are examples of modern management concepts.

EMAS registered organizations play an important role in the future in the propagation of EMAS system in the world and Poland. EMAS system has a chance to exert an important impact on promoting the sustainable development aspects.

The main purpose of the author's own research is to assess the functioning of the EMAS system in Poland on the basis of environmental goals achieved by private sector organizations, including DCT Gdansk, indicated in environmental declarations for the years: 2015, 2016.

While preparing the article, the author assumed the following objectives:

¹Corresponding author. E-mail address: jmyszczyzyn@zut.edu.pl

- to analyse the statistics on the implementation of the EMAS system in Poland and the world;
- to make see that private sector entities can also have a significant influence on the environment and promote sustainable development;
- to indicate the impact of environmental systems on a continuous increase in the awareness of sustainable development in Poland;
- searching for EMAS system barriers and weaknesses for private sector;
- picturing the achieved environmental goals in the case of a selected entity registered in the system for the second year.

To review the research hypothesis posed and research objectives, the author used:

- 1) Primary materials - results of the author's own research conducted amongst EMAS registered organizations in Poland. The questionnaire survey was conducted between May 2016 and December 2017. 35 organizations, including 15 private sector ones, agreed to participate in the study.
- 2) Secondary materials, which include: the statistics available under the Community EMAS register, the register kept by the General Directorate for Environmental Protection, Environmental declarations of EMAS registered organizations and sites (especially environmental declarations for 2015 and 2016 for DCT Gdansk), literature on the subject matter.

Research results and discussion

The European Commission enacted the so-called EC Eco-Audit Regulation in 1993 with focus on the manufacturing industry. The focal point of the revision in 2010 was administrative relief for small and medium-sized enterprises. Furthermore, the revision made it possible for sites outside the EU to participate (Good reasons for EMAS, 2011, Myszczyzyn, 2010, Myszczyzyn, 2017).

Actually, the participation in EMAS scheme is free and open to all kinds of organizations. It is assumed that EMAS shall be made available to all organizations, in and outside the Community, whose activities have an impact on the environment. (Regulation (EC) No 1221/2009).

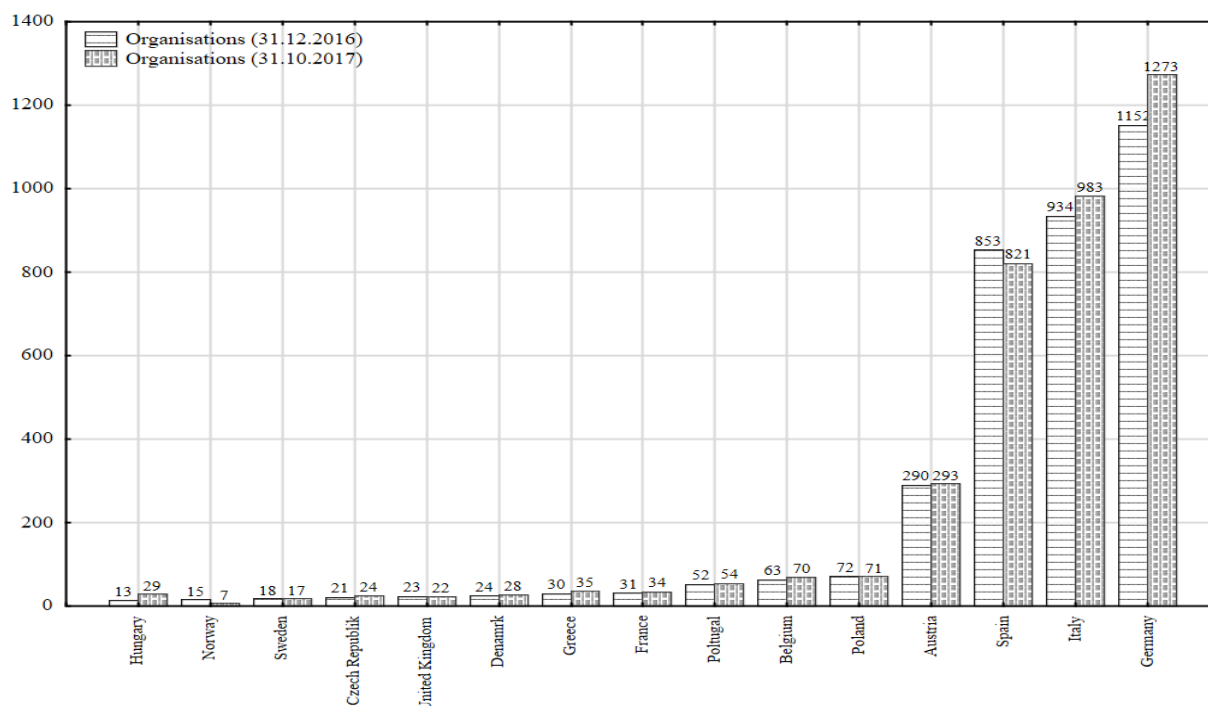
Organizations, intending to be EMAS registered, among other things, must conduct an environmental review, implement an effective environmental management system, carry out an internal environmental audit, prepare an environmental statement, describing both the environmental management system and the environmental performance results (Act of 15 July 2011, Regulation of the Minister of the Environment of 1 February 2012, Regulation of the Minister of Environment of 23 March 2012).

As of 31st October 2016, the EU EMAS register included 3,943 registered organizations, of which 9,093 sites, and a year later (October 2017) 3,865 organizations and 9,140 sites. The number of organizations decreased by 73 (-1.9 %), but the number of sites increased by 43 (0.5 %). The linear trend for the analysed period (2009-2017), it indicates that on average, the number of entities registered in the EMAS is reduced by 45 every year. These are not optimistic data.

In Poland, the system registered 72 organizations and 358 sites (October 2016), and now 71 organizations and 366 sites. Two new organizations were registered in one year, and three were deleted or suspended (Article 15 Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009) It is only 1.8 organizations per 1 million residents (Sustainable, 2015). But there is an enormous gap between Poland and Germany, Italy, Spain (Myszczyzyn, 2017) (Fig. 1).

A list of organizations, operating in Poland and tested by the author and those EMAS registered by sections of national economy is shown below (Fig. 2).

The following sections are most strongly represented in EMAS: section E organizations prevail (remediation and other services related to waste management - 23 organizations), together with those of section O (public administration and defence, compulsory social security - 19 organizations) and section C of industrial manufacturing - 15 organizations).



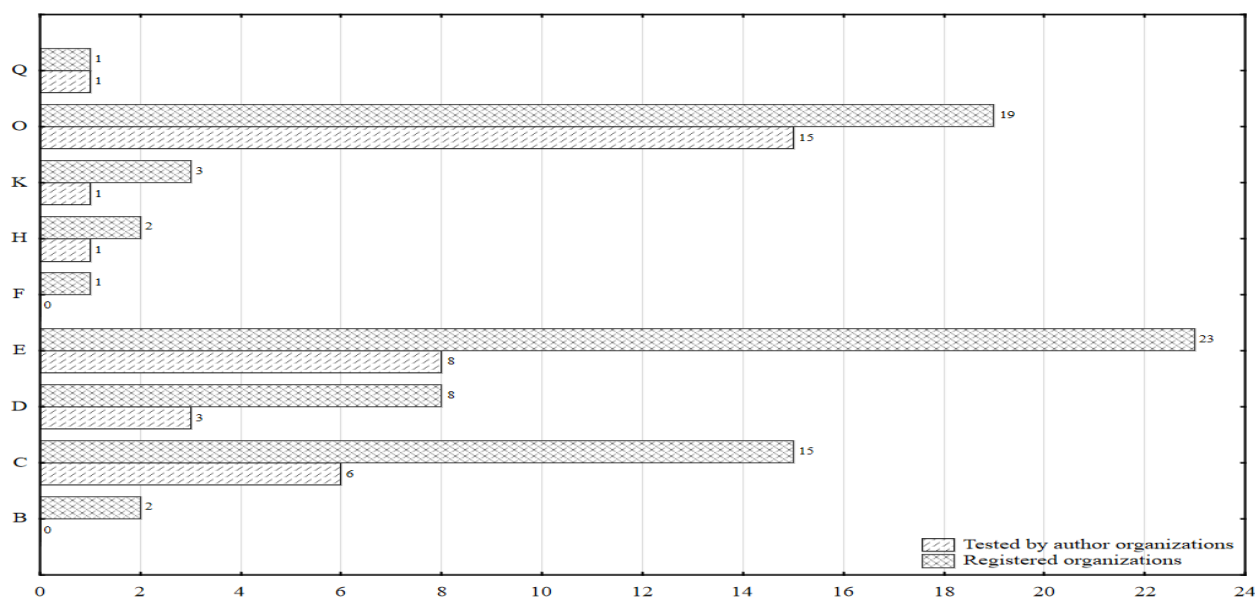
Source: author's calculations based on data: <http://ec.europa.eu/environment/emas/register/reports/reports.do> (30.12.2016), http://ec.europa.eu/environment/emas/pdf/statistics/PDF_Statistic_November_2017.pdf (28.12.2017)

Fig. 1. The number of registered organizations in the EMAS system in selected countries and Poland (01.12.2016 and October 2017)

No organizations of the following sections have been registered: A - agriculture, shooting and forestry, G- wholesale trade, except for motor vehicles, P - education.

The organizations tested by the author represented sections: O (15 organizations), E (8 organizations), C (6 organizations), D (3 organizations), K (1 organization), H (1 organization), Q (1 organization) (Fig. 2).

The private sector in Poland is represented largely by the company of three sections: C (Manufacturing), E (Water supply; sewerage, waste management and remediation activities), D (Electricity, gas, steam and air conditioning supply), E (water supply; sewerage, waste management and remediation activities) (nearly 90 % of implementations of EMAS).



Legend:

B - mining and quarrying, C - manufacturing, D -electricity, gas, steam and air conditioning supply, E - water supply; sewerage, waste management and remediation activities, F - construction, H - transportation and storage, K - financial and insurance activities, O -public administration and defence; compulsory social security, Q -human health and social work activities.

Source: author's calculations based on data www.emas.gov.pl (22.12.2017)

Fig. 2. Organizations registered and tested by author in the EMAS in Poland by sections of national economy (14.02.2017)

The respondents of private sector organizations (15 organizations) indicated the following main benefits of the introduction of EMAS:

- improving the image and relations with stakeholders (14 replies);
- increased awareness of the need for action in the field of environmental protection (12 replies);
- continuous improvement, and by the same, an impact on the sustainable development of the country and the world (12 replies);
- more competitive organization (4 replies) impact on the network of suppliers and customers (3 replies), economic and financial benefits (2 replies).

The following financial benefits were underlined, among other things:

- exemption from excise duty (coal);
- reduced waste and costs associated with its management and disposal;
- reduced quantity of raw materials consumed when using new, more efficient and more environment-friendly technologies;
- reduced pollution (greenhouse gas and dust emission along with dirty water discharge), which led to an increase in economic efficiency, but often required capital expenditures being incurred;
- lack or reduced fines paid for environmental pollution; prestige in the external environment, better (ecological) product;
- better living conditions ensured to those around, including the local community in the region.

Respondents indicated that despite measurable benefits, EMAS scheme also has weaknesses which include:

- the necessity to set out, document and verify subsequent environmental objectives, means extra costs and, in the case of large environmental goals, it may be difficult to put them into life;

- the need to develop regular environmental reports, which require the involvement of staff and management, and which may interfere with the on-going activities of the organization;
- no measurable effects in terms, if only, of limiting additional inspections related to environmental protection on behalf of state authorities and public organizations;
- no amenities with respect to grants for direct investments into environmental protection;
- no tax relief nor other benefits, e.g. in tender procedures, applications for EU funds;
- poor promotion of the EMAS logo in Poland, in many cases unknown by other organizations and citizens.

The private sector respondents pointed out that competing companies can easily get access to business information (production process, planned pro-environmental investments etc.), which they claimed to be a threat.

When asked about the main reasons for the implementation of EMAS in their organizations, the respondents indicated:

- needed continuous improvement of their environmental performance, the achievement of the next stage in this sphere included, as they had ISO 14001 system earlier;
- increased prestige of the organization, the promotion of environmental protection in the external environment included;
- increased involvement of employees in achieving environmental objectives;
- promotion of the idea of green management office;
- instruction of the superior authority.

The results of our own research are only a confirmation that the EMAS system is very important for building the company's image, much bigger than the economic effects (over 93 % of the surveyed companies). The author notes that private sector companies would be more likely to implement EMAS if there were more incentives from central and local authorities.

For the purpose of an in-depth analysis (along with the above-mentioned tests), the author also evaluated pro-environmental actions with particular attention focused on the EMAS system in DCT, which joined the EMAS at the end of 2016.

DCT - deep-water container terminal is the only such undertaking on the Baltic Sea, and in addition, this is one of the fastest developing Polish container terminals.

The company has a strictly defined environmental policy, made publicly available in form of Sustainable Development Document, Environmental Declarations.

DCT's sustainable development means: integrated organisation management and achieving business results in a socially responsible manner, reliability and competitiveness in meeting clients' needs and providing them with the highest-quality services, increasing the terminal's capacity and supporting initiatives to expand the supplementary infrastructure in response to cargo volume growth to ensure comprehensive service for customers, innovation in business processes and in purchasing of goods and services, including new technologies and solutions, which ensure accounting for quality, environment, energy and occupational safety factors, execution and optimisation of processes in an energy efficient manner, aimed to provide sustainable energy use reductions, assurance of safe and comfortable working conditions for all employees engaged in all activities on-site, including third parties; adherence to the principle of zero accidents, respect for the environment and the natural world, reducing environmental impacts, execution of investment processes while maintaining bio-diversity, and when necessary, providing compensation measures.

The Management Board's integrated activities in particular such issues as: quality and client's expectations, in compliance with ISO 9001, energy effectiveness of processes, in compliance with ISO 50001, conditions of safe work, in compliance with OHSAS 18001, environmental protection, in compliance with ISO14001 and EMAS regulation (Declaration of sustainable development of DCT Gdansk SA, 2017).

According to the environmental declarations (2015, 2016) the entity, among other things:

- owing to the investments made (purchase of electric cranes, EURO5 class vehicles), reduced fuel consumption, diesel oil included (by approx. 335 K l), reduced the level of exhaust gases emission, extended the dune laboratory (rebuilt and footbridges installed) in order to protect endangered plant species;
- restricted the quantity of waste (re-usable mausers, retreading of tyres) and the area of used oil dumping ground;
- owing to the new T2 terminal being built, it will reduce CO₂ emission by 27 % for road transport and by 40 % in case of maritime transport,
- undertakes numerous compensation actions for the local population (e.g. educational programmes for children and youngsters) (Declaration of sustainable development of DCT Gdansk SA for 2015, 2016).

The entity plans many new environmental targets. It intends to continue the EMAS system.

Its main purpose is not a direct business goal but the requirements of the stakeholders, its better image.

For the purpose of the development of the organisation, the Company's Management Board declare their involvement in these processes, thus taking into account the principles of quality management, ensuring the engagement of competent personnel and resources for the execution of management and technical processes, as well as energy effectiveness and safety processes, their planning, monitoring, review and improvement.

The above analysis taken into account, the author positively concludes that the implementation of environmental management systems, EMAS included, increases the awareness of organizations, institutions, their management and employees, as well as society that the care about environment is needed to contribute to the promotion and implementation of the idea of sustainable development, but the participation in the EMAS system seems not attractive enough from the perspective of private sector organizations (economic goals) (Myszczyzyn, 2009; Myszczyzyn, 2017).

Conclusions, proposals, recommendations

- 1) In 2016, expenditures on environmental protection in Poland amounted to 0.35 % of GDP. The share of expenditures on fixed assets for environmental protection in investment expenditure in the national economy was at the level of 2.7 % for environmental protection (5.6 % in 2015). The main investor in the field of environmental protection in Poland are enterprises (whose share in expenditure in 2016 was about 72 %), local governments (with a share of about 20 %), then budgetary units (8 %) (Ochrona Srodowiska, 2017).

Therefore, the importance of the private sector (participation in generating of GDP for Poland over 80 %) is very important in the promotion of sustainable development.

- 2) The implementation of the Eco-Management and Audit Scheme is a chance to put into life the sustainable development guidelines. This can also be a chance to the organizations which

already have ISO 14001 environment management system, to improve their further environmental actions within EMAS. To achieve measurable success in implementing of the EMAS system, the private sector must be involved.

- 3) The EMAS system is still not popular enough in Poland, and private entities are not eager to extend their earlier environmental policy by the analysed system. The firms of the SMEs sector do not appear to be interested in the system; contrary to ISO Systems, ISO 14001 included. Indeed, there are still many weaknesses of the EMAS system, but it is also a signal for the authorities and the Ministry of Environmental Protection to conduct more effective education, more preferences for environmental companies, more activity in public-private partnership. A lot also depends on the education sector, which should be even more strongly involved in the development of pro-ecological attitudes in the economy.
- 4) Currently, out of 71 organizations registered in the EMAS system in Poland, only 2/3 belong to the private sector. In accordance with The ISO Survey of Management System Standard Certifications 2016 in the year 2016 (in the world) the system ISO 14001 was implemented in 26,693 organizations (annual growth-8 %), EMAS – only 15 organizations (annual growth of-0.3 %) (The ISO Survey of Management System Standard Certifications, 2016). Both Environmental Management Systems (ISO 14001 and EMAS) have the same guarantees, are equally reliable and are very similar, the EMAS regulation being the most restrictive (Alvarez-Garcia, Rio Rama, 2016).
- 5) The author's research (surveys, environmental declarations) is a confirmation that constantly setting new environmental goals (a necessity in the EMAS system) and public reporting of the achieved goals influences the construction of sustainable development. DCT Gdansk has achieved goals like: reduced fuel consumption, diesel oil included (by approx. 335 K l), reduced the level of exhaust gases emission, extended the dune laboratory in order to protect endangered plant species, restricted the quantity of waste and the area of used oil dumping ground, owing to the new T2 terminal being built, it will reduce CO₂ emission by 27 % for road transport and by 40 % in case of maritime transport.
- 6) Other private sector organizations surveyed also limited consumption of raw materials, gas emissions, noise limitations, implemented modern technologies, more optimal for the environment.
- 7) Despite their growing awareness of the sustainable development, private sector entities are sceptical of the business effects (73 % of the surveyed organizations), arising from the EMAS system being implemented. They make up their mind most frequently so as to improve their image amongst their contractors (93 % of the surveyed organizations) or they imitate the patterns from mother companies, among other things, from Western Europe. The public sector and the state still create too little preference for private companies, but they would expand their pro-ecological activity (93 % of the surveyed organizations).

Based on the results of the author (and other authors), it can be concluded that the added value for the private organization through the implementation of EMAS was not significant. As shown by the study, in the opinion of the majority of respondents, the EMAS system rather has not contributed: directly to an increase in the competitiveness of the organization (93 % of the surveyed organizations), economic and financial benefits (87 % of the surveyed organizations). However, the need to set new environmental objectives and to improve the system, the drawing up further environmental statements had an indirect influence on the increase in innovativeness and

contributed to confidence in the environs of the organization, to the involvement of employees, the boards included. Private companies seem more interested in economic aspects, such as public funding access and call for tenders (Kivi, Gurvits, 2017; Preziosi, Merli, D'Amico, 2016; Myszczyzyn, 2017). The assumptions of the EMAS scheme of continuous improvement and verification of targets along with laying down new ones make up difficulties to the organizations already registered and a barrier to potentially interested new candidates.

8) As suggested by numerous authors, the implementation of EMAS has an impact on the external and internal benefits gained on suppliers, customers included (Hillary, 2004; White, Lomax, 2010; White, Lomax, Parry, 2010; White, Lomax, Parry, 2014; Myszczyzyn, 2017).

However, the costs of investments in the area of environment may sometimes exceed the short-term revenues, but the long-term financial benefits and the environmental ones included can be significant.

As shown by the authors, one of the main barriers found in the implementation of EMAS relates to the difficulty of attributing positive outcomes directly to the EMAS (as confirmed by the author's own research).

9) Author believes that more initiatives from the state side and public organizations are strongly required to promote EMAS implementation and to increase the public awareness of the EMAS system, its main benefits and added values (Kivi, Gurvits, 2017).

Bibliography

1. Alvarez-Garcia J., del Río Rama M., (2016), Sustainability and EMAS: Impact of Motivations and Barriers on the Perceived Benefits from the Adoption of Standards, *J. Sustainability* 8 (10), p. 1057.
2. Declaration of Sustainable Development DCT Gdansk SA 30.03.2017 r.: <http://dctgdansk.pl/wp-content/uploads/2014/04/Declaration-of-Sustainable-Dev.-032017.pdf>. Access: 22.12.2017.
3. Deklaracja środowiskowa DCT S.A. za 2016 r. z dnia 17.05.2017 r.: <http://dctgdansk.pl/wp-content/uploads/2014/04/20170614-Deklaracja-%C5%9Brodowiskowa-2016-podpisana.pdf> Access: 02.01.2018 (Declaration of sustainable development DCT Gdansk SA for 2016).
4. Deklaracja środowiskowa DCTA S.A. za 2015 r. z dnia 20.07.2016 r.: https://dctgdansk.pl/wp-content/uploads/2014/04/DCT_ISO_SC_17.01_Deklaracja-%C5%9Brodowiskowa-z-%C5%82%C4%85cznikami_20160720_podpisana_zabezpieczona.pdf Access: 02.01.2018 (Declaration of sustainable development DCT Gdansk SA for 2015).
5. Good Reasons for EMAS, 2011 Retrieved: http://www.emas.de/fileadmin/user_upload/06_service/PDF-Dateien/7-good-reasons-for-EMAS.pdf. Access: 28.12.2016.
6. Hillary R. (2004). Environmental Management Systems and the Smaller Enterprise. *Journal of Cleaner Production*, 12.
7. Kivi K., Gurvits N. (2017). Eco-Management and Audit Scheme (EMAS) Implementation in the European Union: Survey of Estonian Certified Organisations, *European Integration Studies*, 2017/11, pp. 211-219.
8. Myszczyzyn J. (2009). Rola wspólnotowego systemu ekozarządzania i audytu (EMAS) w promowaniu zrównowzonego rozwoju w Polsce (The role of the eco-management and audit scheme (EMAS) in the promotion of sustainable development in Poland), *Acta Scientiarum Polonorum (Oeconomia)* 8 (4), pp. 127-138.
9. Myszczyzyn J. (2010). Polskie doświadczenia w implementacji wspólnotowego systemu ekozarządzania i audytu w świetle najnowszego rozporządzenia EMAS III (Polish experience with the implementation of community Eco-management and audit scheme in the face of the latest regulation EMAS III), *Ochrona Środowiska i Zasobów Naturalnych* nr 44, pp. 44-50.
10. Myszczyzyn J. (2017). Eco-management and Audit Scheme (EMAS) as an Important Element of the Sustainable Development Policy on the Example of Poland, *Economic Science For Rural Development*, No 45.
11. Ochrona Środowiska (2017) Główny Urząd Statystyczny, Warszawa, pp. 43-44.
12. OECD (2016), Development Co-operation Report 2016: The Sustainable Development Goals as Business Opportunities, OECD Publishing, Paris, p. 5.
13. Ostrowiecki D. (2015) Sektor prywatny w świetle wizji zrównowzonego rozwoju dla polskiego biznesu 2050, *Białostockie Studia Prawnicze*, Z. 18
14. Preziosi M., Merli R., D'Amico M. (2016). Why Companies Do Not Renew Their EMAS Registration? An Exploratory Research, *J. Sustainability* 8 (2), p. 191.

15. Sustainable development in the European Union. (2015) Monitoring Report of the EU Sustainable Development Strategy, Eurostat, Luxembourg: Publications Office of the European Union.
16. The ISO Survey of Management System Standard Certifications 2016,
http://isotc.iso.org/livelink/livelink/fetch/-8853493/8853511/8853520/18808772/00._Executive_summary_2016_Survey.pdf?nodeid=19208898&vernum=-2, Access: 28.12.2017.
17. White, G., Lomax, M. (2010). Environmental Management Systems: Costs, Benefits and an Activity Theory Approach to Understanding their Knowledge-generating Capabilities, *The Environmentalist*, 100.
18. White, G., Lomax, M. Parry, G. (2014). The Implementation of an Environmental Management System in the Not-for-profit Sector, *An International Journal*, 21 (4).

Legislative acts

19. Rozporządzenie Ministra Środowiska z dnia 1 lutego 2012 r. w sprawie wzoru wniosku o rejestrację organizacji w rejestrze EMAS (Regulation of the Minister of the Environment of 1 February 2012 on the model of the application for registration of organizations in the EMAS register), Dz.U. 2012 nr 0 poz. 166.
20. Rozporządzenie Ministra Środowiska z dnia 23 marca 2012 r. w sprawie współczynników różnicujących wysokość opłaty rejestracyjnej za wpis do rejestru organizacji zarejestrowanych w krajowym systemie ek zarzadzania i audytu (EMAS) (Regulation of the Minister of Environment of 23 March 2012 on the factors differentiating the registration fee for the entry in the register of organizations registered in the national eco-management and audit scheme (EMAS)) (Dz.U. 2012 nr 0 poz. 341).
21. Rozporządzenie Parlamentu Europejskiego i Rady (We) Nr 1221/2009 z dnia 25 listopada 2009 r. w sprawie dobrowolnego udziału organizacji w systemie ek zarzadzania i audytu we Wspólnocie (EMAS) (Regulation (EC) No 1221/2009 of The European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC).
22. Ustawa z dnia 15 lipca 2011 r. o krajowym systemie ek zarzadzania i audytu (EMAS), (The Act of July 15, 2011 on the National Community Eco-Management and Audit Scheme (EMAS)), Dz.U. 2011 nr 178 poz. 1060

THE CODE OF GOOD AGRICULTURAL PRACTICE AS AN ELEMENT OF SUSTAINABLE DEVELOPMENT BASED ON OPINIONS OF FARM OWNERS

Aleksandra Plonka¹, PhD Eng.; Izabela Wielewska², PhD

¹ The University of Agriculture in Krakow, Poland,

² UTP University of Science and Technology in Bydgoszcz, Poland

Abstract The paper discusses the relation between issues related to environment protection and agricultural production. In the first half of 2017, surveys were conducted on 223 farms of which a fragment has been presented showing agricultural producers' opinions about issues related to the Code of Good Agricultural Practice. One of underlying assumptions was an attempt to identify farmers' attitudes to and their opinions about the practical application of principles adopted in the Code and its impact on the implementation of assumptions of the concept of sustainable development. Based on the research, nearly 60 % of respondents had applied the good agricultural practices on their farms. In their opinion, the application of the Code's recommendations helped improve the overall condition of the environment thanks to, among other things, soil protection, landscaping, improved water quality or pollution control. Moreover, the respondents indicated benefits which had direct effect on the functioning and condition of the farm as a unit that helped it stand out among neighbouring farms. One of major obstacles preventing the implementation of good agricultural practices by farms was the lack of information about the Code and promotion of its importance to the implementation of the concept of sustainable development.

Key words: the Code of Good Agricultural Practice, agricultural practice, farms, sustainable development, sustainable agriculture.

JEL code: Q56

Introduction

A few hundred thousand years ago man was a part of the environment participating in a natural energy and matter cycle without interfering with those processes. Unfortunately, as civilization advanced, man's attitude towards appropriated nature has become increasingly disrespectful and strengthened. The industrial revolution and newer and newer inventions diametrically changed the relations between man and the environment. Human activities have caused considerable nuisance to the environment including pollution and damage (Adamska H., 2015). The environment's quality has become a major problem related to man's existence and further civilization advancement (Brown L. *et al.*, 1995; Stacewicz J., 2001; Kozłowski S., 2005; Sadowski A., 2007; Rogall H. 2010; Dacko M., Plonka A., 2012; Adamska H., 2015).

Due to increasing environmental problems, back in the 1960s measures were taken to improve the environment's condition and protection. Upon the presentation of a list of dangers threatening humans, calls were made to accept challenges in the area of proper development both as regards the present and the future. A potential remedy to solve the problems was the implementation of the concept of sustainable development leading to improved life quality with basic pro-environmental attitudes (Zylicz T., 2004; Wielewska I., 2014; Dacko M., Plonka A. 2017). Adopting such paradigm, it was decided that only such a direction of development respected by all countries in the world may help satisfy the needs of current and future generations (Adamska H., 2015).

The implementation of the concept of sustainable development was started seeking a balance between the environmental, economic and social zone being provided for in a number of legal regulations governing the protection and management of environmental resources. In particular, special attention was paid to the issues of the development of rural areas and agriculture. For ages, being one of strategic sectors of economy, agriculture has had major effect on generating and maintaining diverse habitats, including natural and semi-natural ones characterized by natural richness (Plonka A., 2017). Developing rural areas, starting with plot development and

¹Corresponding author. E-mail address: a.plonka@ur.krakow.pl

²Corresponding author. E-mail address: izabel2000@wp.pl.

management and ending with the entire spatial country layouts, it guarantees consistency between local community and nature that affects and sets the pace of life for its inhabitants (Kozłowski S., 2004). However, on the other hand, intensive changes in farming practices and tillage resulted in significant deterioration of soil condition and the environment's natural quality. Based on the OECD's report (2012), farming is one major factors resulting in the degradation of the environment and the loss of biodiversity. Such hazards are caused by, among other things, land melioration, pollution of soil and water due to excessive chemicalization of agriculture or the introduction of biogeographically alien species into the environment (Krol M. A., 2013). According to Symonides (2008), the more intense agricultural use, the bigger and more long-lasting impact. Hence, from among the systems of modern agriculture, a system that fails to take into account the principles of reasonable use of natural environment is a severe threat (Plonka A., 2017).

For many years the European Union has been promoting the model of agriculture orientated towards pro-ecological measures that respects the principles of sustainable development. Such approach was reflected in the Common Agricultural Policy whereby the application of agricultural practices is required that do not interfere with environmental balance, ensure economic benefits and facilitate social development (Zegar J., 2012). Farmers adjust their agricultural production mostly to meet the criteria of microeconomic effectiveness in that way jeopardizing ecological balance and making the entire society suffer the related costs of reducing the imbalance (Boltromiuk A., 2006). Hence, Mac Sharry's reform introduced the regionalization of agricultural policy, supporting the production methods facilitating the protection of the natural environment and rural areas as well as many forms of excluding land from agricultural production. One of key measures taken to protect the environment included connecting direct payments with the duty of compliance with the rules of the so-called good agricultural practice and quality standards by farmers which are consistent with the concept of the model of agriculture based on the production that is safe for the environment and consumers' health (Krasiuk J, 2004). Shaping the criteria of granting financial assistance to farmers in that way, they are encouraged to voluntarily increase their ecological awareness as part of environment protection as well as carrying out production on farms in accordance with the adopted principles of good agricultural practice.

Material and the research method

Connecting the issue of financing farming with the necessity of complying with specific rules of conduct in line with the concept of sustainable agriculture (and development) resulted in a duty imposed on the European Union Member States to develop a document providing for key principles of running a farm. In Poland the Code of Good Agricultural Practice (CGAP)/*Kodeks Dobrej Praktyki Rolniczej (KDPR)* was developed in 2004 and its provisions detail agricultural practices that were favourable to the environment and contain information being the source of expertise regarding the protection of its individual elements. The Code is a source of information about what is permitted or prohibited in agricultural activities and helps prevent violations. Hence, it is the collection of practices that helps shape farmers' social attitude vis-a-vis the applicable law, teaching them how to minimize the adverse impact on the environment (Kania J., 2006).

The Code in a detailed manner explains the principles (good practices) which in particular refer to (Kania J., 2006):

¹Corresponding author. E-mail address: a.plonka@ur.krakow.pl

²Corresponding author. E-mail address: izabel2000@wp.pl.

- arranging and managing a sustainable farm (managing the layout of land, the organization of plant and animal production, the balance of minerals and organic substances, the integrated plant protection);
- protecting water against pollution from point and area sources (the use of panels with containers to store manure, the dosage and time limits for the use of manure and mineral fertilizers, the use of sewage and sludge, the application of chemical plant protection agents, agritechnical water pollution methods),
- protecting agricultural land, in particular, against erosion and physical degradation (water and wind erosion, soil air/water ratio on green wastelands and arable land), chemical degradation (the contents of assimilable nutrients, soil pH) and biological degradation (organic soil substances and soil's biological activity),
- protecting the air (pollution and exhaust gas level, odour substances, ammonia, greenhouse gases),
- protecting the landscape and maintaining biodiversity (farmsteads as a part of landscape, biodiversity on farms).

However, the farmers who are not beneficiaries of the system of direct payments or other Common Agricultural Policy programs are not obligatorily required to comply with the principles and recommendations of the Code of Good Agricultural Practice. Thus, their implementation in practice mostly depends on a given farmer's level of expertise, including their awareness of the impact of their agricultural activity (especially the adopted agricultural system) on the environment and their so-called good will which frequently reflects that they are aware of the related benefits (Plonka A., 2017).

In this paper, a fragment of the research conducted in 2017 is presented that involved farms located in Poland and engaged in diverse agricultural production. The main reason for the research was to show the attitude of agricultural producers to issues related to the CGAP. The main research aim was an attempt at identifying farmers' attitudes to and their opinions about the practical application of principles adopted in the Code and its impact on the implementation of assumptions of the concept of sustainable development.

In the survey, 223 farm owners participated, including 127 engaged in plant production, 33 specializing in animal production and 63 applying a mixed system (i.e. plant and animal production). The criterion for the selection of research subjects was engagement in activities adjusted to local natural conditions that reflect the most popular field system and/or animal production system representing diverse directions and production intensity. At the same time, as part of the research it was assumed that farms may be run by semi-agricultural farmers.

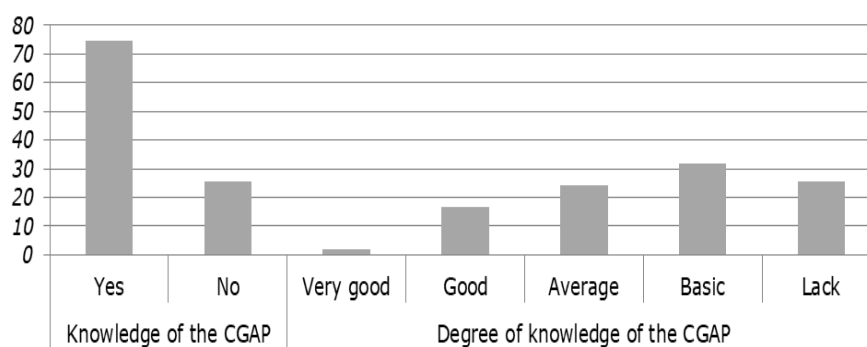
The main research tool employed to gather information and empirical data was a questionnaire with a categorized set of questions divided into five basic sections. Answering questions in the questionnaire the respondents, among other things, assessed their knowledge of the Code's principles, described the impact of the Code's recommendations on the organization of farm labour, indicated noticeable benefits stemming from their practical application and referred to the impact of the CAGP on the implementation of the assumptions underlying the concept of sustainable development. Due to limitations of this paper, only a small portion of the research results is presented, i.e. those that refer to the issue of the respondents' life in compliance with the CAGP and sustainable development.

The survey was conducted using two research techniques. The first was a random survey whereby the questionnaires were handed over to the respondents and filled out by people gathered in a given space. Computer Assisted Web Interviews (CAWI) was another technique helpful with data collection. Currently, it is one of the most frequently used research techniques as part of which questionnaires are sent by electronic mail and completed online by respondents (Sobocinska, 2005). Therefore, since the survey is partially completed in an electronic format, a hyperlink to the questionnaire embedded on a Google drive was made available to the respondents.

Research results and discussion

The Code of Good Agricultural Practice's primary goal is to propagate knowledge of the protection of individual elements of the natural environment among farmers, such as soil, water, air and landscape. In line with the CGAP, the pursuit of the goals of both sustainable agriculture and sustainable development is interrelated to farmers' great ecological awareness. In particular, special attention should be paid to intentions of farm owners in the context of their responsibility for the condition of the environment in rural areas. Raising the farmers' ecological awareness has an effect on the form and quality of their agricultural business. On farms where recommendations and advice provided by the Code are followed, there is hardly any risk of the agricultural production's adverse effect on the quality and state of resources of the natural environment or such risk is minimized (Plonka A., 2017).

Taking into account that fact that the Code of Good Agricultural Practices is embedded in legal regulations, it could be reasonably expected that the document itself and its contents should be commonly known. More than 25 % of the owners of farms taking part in the survey stated the opposite and stressed that they have not come across the concept of the Code or its contents until the survey (Figure 1). Nearly 75 % of the respondents confirmed that they were familiar with the concept of the CGAP whereas the evaluations of their knowledge of the Code's contents were diversified. The respondents mostly rated their knowledge of the contents of the CGAP as basic (32 %) or average (24 %). Every fourth respondent stated that they were not familiar with the concept of the CGAP or its recommendations.

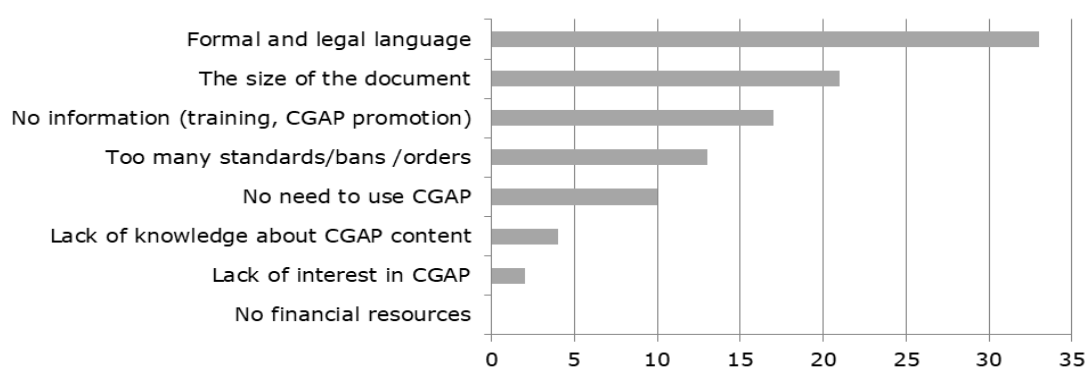


Source: author's calculations based on research and Plonka 2017

Fig. 1. Knowledge of the concept and principles of the CGAP based on the farmers' opinions (in %)

In the further part of the survey, the farm owners who were familiar with the concept of the Code (i.e. 167 respondents), were enquired about the practical application of its guidelines. Only 12 % of the respondents admitted that they had followed the Code's practices and recommendations in a comprehensive manner. On the other hand, 47 % of the respondents

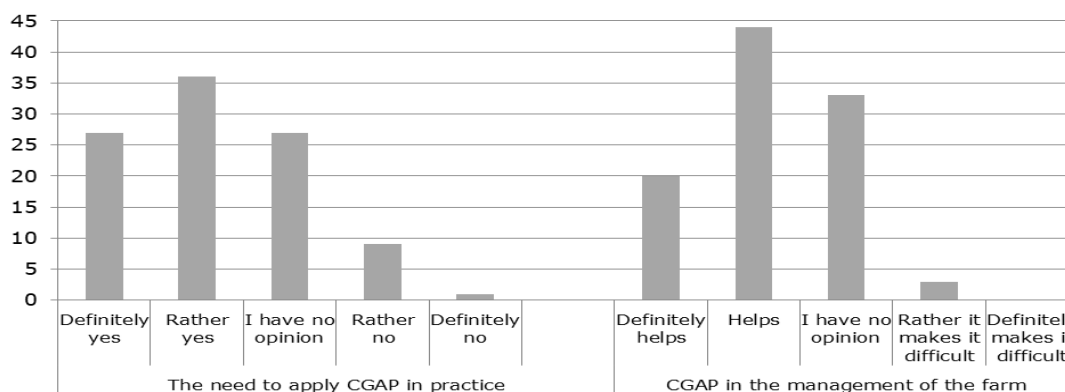
admitted that they had been practicing them on their farms but only partially, that is, followed selected recommendations only. Among a broad range of reasons that resulted in a relatively high percentage of negative answers that indicated that the Code's recommendations have not been followed in practice, the respondents indicated, among other things, the lack of the related information as one of reasons for such situation (Figure 2). They emphasized that they mostly acquired expertise in the field of agricultural practices from their families (passed down from generation to generation) while the information provided in the course of training or meetings with advisors have usually been general. Moreover, the respondents stated that the Code as such did not encourage potential readers to read it. Its detailedness and formal and legal language discourage potential readers and that's why farmers mostly base their knowledge on oral instructions which are cursory. Interestingly enough, only one person stated insufficient funds as a reason for noncompliance with the Code's recommendations which they would be required to invest to adjust their production to specific requirements.



Source: author's calculations based on research

Fig. 2. Reasons of non-compliance with the CGAP's recommendations specified by the respondents (in %)

Despite a relatively high percentage of the respondents indicating noncompliance or partial compliance with the Code's recommendations on the surveyed farms, the respondents correctly emphasized the need for the Code and its practical application (Figure 3). Over 60 % of the respondents recognized the Code of Good Agricultural Practice as a tool needed for farming, conducive to the protection of the environment that fits in the concept of sustainable development and a model of sustainable agriculture.

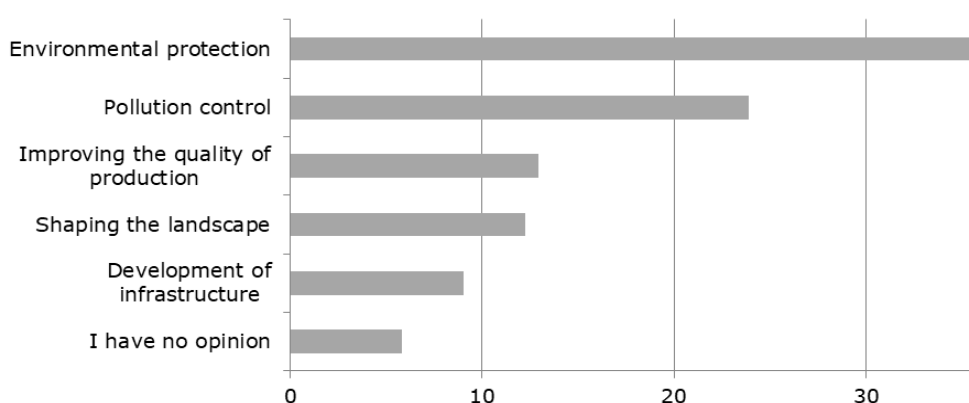


Source: author's calculations based on research

Fig. 3. The respondents' opinions regarding the need for the existence of the CGAP and its impact on farm management (in %)

Nearly 30 % of the respondents were unable to make a clear statement regarding the issue. It should be stressed that the group certainly consists of the Code's supporters who, having read the Code and become familiar with its contents, will begin to apply its individual provisions in practice. Similarly inspiring results were obtained when the respondents were enquired whether the Code of Good Agricultural Practice can be treated as an indispensable tool that ensures that the farm is managed properly. The majority of the respondents, i.e. 64 %, stated that the guidelines contained in the CGAP were certainly helpful in agricultural production in accordance with the law. However, it should be noted that 12 respondents who stated that they definitely needed to comply with the Code's recommendations in practice, were not clearly convinced that it was correct to follow them in regard of their own farms. It is an inspiring fact that none of the respondents adopted a clearly negative attitude towards the CGAP stating that the implementation of its recommendations in practice would interfere with running the farm.

The survey's main purpose was to become familiar with the respondents' opinions regarding the impact of the practical implementation of the CGAP's recommendations on the functioning of the farms and their immediate environment. Hence, the respondents were asked to indicate noticeable changes resulting from the application of good agricultural practices. The protection of the environment as a whole was correctly recognized as a key answer by the respondents (Figure 4). The purpose of the Code is to promote agricultural activities following the principles of the rational use of the natural environment. The second most frequently chosen answer in the survey was controlling pollution on the farms. Nearly 25 % of the respondents confirmed that compliance with norms regarding, among other things, the use of mineral fertilizers and plant protection agents, storing organic fertilizers, waste management or keeping set grace periods had definitely helped reduce pollution in general on the farms and in the neighbouring area. Based on nearly 13 % of all answers given in the survey, the compliance with the CGAP in practice also contributes to the improvement of the quality of the agricultural production, which in turn leads to the farm's better image vis-a-vis neighbouring entities since the respondents confirmed that the environmental practices applied in farming help improve the farms' image, in that way giving them a chance to improve their competitive edge compared to other farms.



Source: author's calculations based on research

Fig. 4. The impact of the compliance with the CAGP recommendations based on the respondents' opinions (in %)

Conclusions

- 1) Agricultural activities entail the use of the elements of the environment which are indispensable for agricultural production such as soil, water and air. The more intense agricultural use, the

¹Corresponding author. E-mail address: a.plonka@ur.krakow.pl
²Corresponding author. E-mail address: izabel2000@wp.pl.

bigger and more permanent consumption of environmental resources. Therefore, introducing or keeping a balance between agriculture and environment must be a regular and long-term process based on the holistic approach to the farm and applicable legal regulations (Duer, 2017) also provided for in one of the fundamental documents that affect the farmers' attitude towards the environment, i.e. the Code of Good Agricultural Practice. Compliance with the recommendations, instructions and prohibitions provided for in the CGAP result in the farmers' liability for the improvement of the condition and quality of the natural environment and also contribute to the implementation of the assumptions of the concept of sustainable development (including sustainable agriculture), including due to its importance to the management of natural resources.

- 2) Compliance with good agricultural practices mainly depends on the farmer's expertise, including their awareness as regards the impact of their agricultural activities (especially the adopted agricultural system) on the environment. Compliance with the CGAP rules is voluntary for all farmers who do not benefit from financial assistance granted as part of the Common Agricultural Policy. Thus, compliance with the principles and recommendations of the Code of Good Agricultural Practice is not an obligatory requirement for farmers who are not the beneficiaries of the system of direct payments or other aid programs. Therefore, the need to regularly inform and make the farmers aware of the adverse impact of their agricultural activities on the environment and how to prevent it seems to be crucial, even the more so as over 25 % of the respondents have not come across the concept of the CGAP, have not been familiar with its contents and have not applied its principles in practice.
- 3) The respondents who declared that they were familiar with the contents of the Code, correctly stressed the need to comply therewith. They were aware of the fact that only compliance with the principles of good agricultural practice would allow them to engage in the activities that are not harmful to the environment and are in line with the concept of sustainable development. Recognizing the environment protection and control of pollution on farms as major benefits stemming from the application of good agricultural practices, the respondents validated the importance of the Code as one of the elements that help implement the concept of sustainable development.

Bibliography

1. Adamska, H. (2015). *Zrównowazony rozwój obszarów wiejskich na przykładzie Dolnego Śląska (Sustainable development of rural areas on the example of Lower Silesia)*. Wyd. Uniwersytetu Przyrodniczego we Wrocławiu, Wrocław.
2. Brown, L., Kene, H., Roodman, D. M. (1995). *Świat w którym żyjemy. Trendy kształtujące naszą przyszłość (The world in which we live. Trends shaping our future)*. Wyd. Książka i Wiedza, Warszawa.
3. Boltromiuk, A. (2006). Przyczyny i skutki wzrostu zainteresowania aspektem środowiskowym w polityce rolnej UE (*The reasons and consequences of increasing interest of cap environmental aspects*). *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu*, VIII(4), pp. 59-63.
4. Dacko, M., Plonka, A. (2012). *Moja Natura (My Nature)*. Wyd. Starostwo Powiatowe w Nowym Saczu, Nowy Sacz.
5. Dacko, M., Plonka, A. (2017). *Idea rozwoju zrównowalonego w opiniach i postawach rolników (Idea of sustainable development in the opinions and attitudes of farmers)*. *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu*, XIX(1), pp. 38-43.
6. Duer, I. (2017). *Dobra praktyka rolnicza w programach rolnośrodowiskowych (Good agricultural practice in agri-environmental programs)*. IUNiG, Puławy. Retrieved from: http://www.tnz.most.org.pl/dokumenty/publ/ochrona/dobra_praktyka.htm Access: 01.02.2018.
7. Kania, J. (2006). Programy rolno-środowiskowe i zasady dobrej praktyki rolniczej jako możliwości optymalnego gospodarowania i ochrony dolin rzecznych (*Agri-environmental programme and good farming practices as opportunities of the best farming system and protection of river-valleys*). *Infrastruktura i Ekologia Terenów Wiejskich*, 2006/4(1), pp. 74-99.

¹Corresponding author. E-mail address: a.plonka@ur.krakow.pl

²Corresponding author. E-mail address: izabel2000@wp.pl.

8. Kozłowski, S. (2004). Ochrona różnorodności biologicznej i georóżnorodności jako elementu zrównowoczonego rozwoju Europy (*Protection of biodiversity and geodiversity as an element of the sustainable development of Europe*) (in:) Chmielewski T. J., *Problemy organizacji i funkcjonowania systemu ostoł siedliskowych Natura 2000 w Polsce (Problems of organization and functioning of Natura 2000 habitat sites in Poland)*. ZN PAN, Komitet Naukowy Człowiek i Środowisko, Warszawa, pp. 13-34.
9. Kraciuk, J. (2004). Propozycja zmian we Wspólnej Polityce Rolnej (*Proposed changes in the Common Agricultural Policy*). *Wspólnoty Europejskie (European communities)*, 11.
10. Krol, M. A. (2013). *Producent rolny jako podmiot korzystający ze środowiska (Agricultural producer as a user of the environment)*. Wyd. Studia Iuridica Lublinensia, Lublin.
11. OECD (2012). Environmental Outlook to 2050. Consequences of Inaction, OECD Publishing. Retrieved from: <http://dx.doi.org/10.1787/9789264122246-en> Access: 01.02.2018.
12. Plonka, A. (2017). Wpływ zasad Kodeksu Dobrej Praktyki Rolniczej na poprawę konkurencyjności gospodarstw rolnych w opiniach ich właścicieli (*Impact of the Code of Good Agricultural Practice for improving the competitiveness of farms in the opinions of their owners*). *Marketing i Rynek*, 10/2017, pp. 505-516.
13. Rogall, H. (2010). *Ekonomia zrównowoczonego rozwoju - teoria i praktyka (The economics of sustainable development - theory and practice)*. Wyd. Zys i S-ka, Poznań.
14. Sadowski, A. (2007). Zrównowoczonego rozwoju jako proces społeczny (*Sustainable development as a social process*). *Ekonomia i Środowisko*, pp. 85-99.
15. Sobocińska, M. (2005). Badania marketingowe przez Internet (*Internet Marketing Research*) (in:) Mazurek-Lopacińska, K. *Badania marketingowe. Teoria i praktyka (Marketing Researches. Theory and practice)*. Warszawa.
16. Stacewicz, J., (2001). Cywilizacyjny wymiar rozwoju zrównowoczonego (*Civilization dimension of sustainable development*). *Ekonomia i Środowisko*, 1(18), pp. 7-22.
17. Symonides, E. (2008). *Ochrona przyrody (Nature protection)*. Wyd. Uniwersytetu Warszawskiego, Warszawa.
18. Wielewska, I. (2014). Selected environmental aspects of sustainable development in rural areas, *Folia Pomeranae Universitatis Technologiae Stetinensis Seria Oeconomica*, 314(77)4, p. 159-166.
19. Zegar, J. (2012). *Współczesne wyzwania rolnictwa (Contemporary agriculture challenges)*. PWN, Warszawa.
20. Zylicz, T. (2004). *Ekonomia środowiska i zasobów naturalnych (Economics of the environment and natural resources)*. PWE, Warszawa.

¹Corresponding author. E-mail address: a.plonka@ur.krakow.pl

²Corresponding author. E-mail address: izabel2000@wp.pl.

ANALYSIS OF FIRE RISK IMPACT ON REAL ESTATE IN LATVIA

Nikolajs Rauza¹, Mg.sc.; Tatjana Tambovceva², Dr.oec/ Professor
^{1,2}Riga Technical University

Abstract. The economic development of the country is very often measured by the development of construction and other industries and the real estate market. Consequently, buildings are very important for the national economy. Real estate management is connected with the owners' responsibility for real estate, its long-term existence, maintenance of the property and all related processes. One of the most important risks in facility management is fire risk. Fire has become an important part of civilization and a factor in the development of society. Among different types of disasters, fire constitutes a significant threat to life and property in urban and rural areas. In Latvia, fire risks are under the control of the State Fire and Rescue Service of the Republic of Latvia. The aim of the research is to investigate statistics of fires in Latvia during the period from 2012 to 2017, and to find the main causes of fires and potential ways to improve the situation. The authors used data analysis, comparison and logical access methods and developed some recommendations. Statistical data for research has been offered by the State Fire and Rescue Service of Latvia and the State Land Service. Research results show that the main causes of the fire are: careless handling of fire, heating systems, fire setting, phase fault, electrical equipment and other equipment, children playing with fire, lightning and other reasons.

Key words: fire risk, real estate, fire risk analysis, fire risk management, fire safety

JEL code: R19, L89

Introduction

Buildings are very important for the national economy. The economic development of the country is very often measured by the development of construction and other industries and the real estate market. The State Land Service is responsible for surveying buildings and groups of premises in Latvia. It was established in 1992 as a government institution for the implementation of land reform. The SLS is also responsible for collecting and accumulating data about real property objects and disseminating it to institutions responsible for supervision and land management. The SLS is also responsible for the cadastral surveying of buildings and groups of premises, i.e. to obtain spatial and textual data of buildings and groups of premises; to update the information in the State Information System of Real Property Cadaster, and to manage the methodology for the cadastral surveying of land and buildings.

Statistical data provided by The State Land Service shows that the total number of building in Latvia from 2012 to 2017 is between 1.377 million to 1.4 million (Table 1).

Table 1

Number of buildings and their categories in Latvia

Year	2012	2013	2014	2015	2016	2017
Residential houses	353338	356177	358890	359897	360736	361832
Non-residential buildings	1000679	1004517	1008037	1007622	1007522	1007192
Engineering structures	23961	23510	25001	26270	28706	30022
Total:	1377978	1384204	1391928	1393789	1396964	1399046

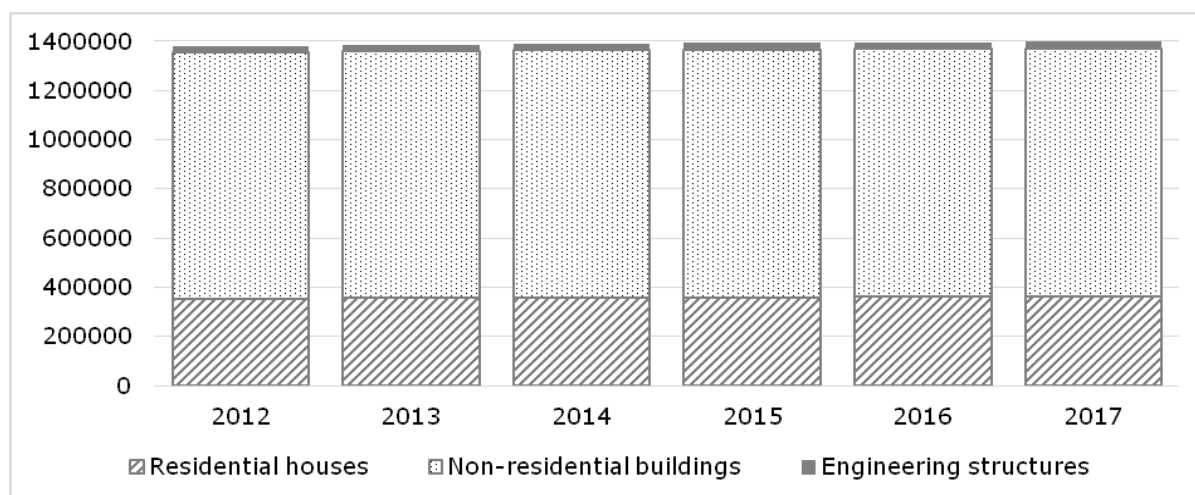
Source: State Fire and Rescue Service (2018)

Table 1 show that all buildings were categorized in 3 categories: Residential houses, Non-residential buildings and Engineering structures. The total number of buildings is virtually unchanged during the study period from 2012 to 2017.

Figure 1 illustrates the number of buildings and their categories during the period from 2012 to 2017 in Latvia.

¹Corresponding author. Tel.: +371-26377888. E-mail address: nikolajs@adarbnica.lv

²Corresponding author. Tel.: +371-29492724. E-mail address: Tatjana.Tambovceva@rtu.lv



Source: author's calculations based on the State Fire and Rescue Service (2018)

Fig. 1. Number of buildings and their categories in Latvia

Figure 1 shows that for the period from 2012 to 2017 the number of residential houses increased about 2.4 percent, the number of non-residential buildings increased 0.65 percent, but the number of engineering structures increased about 25 percent, but in total only 1.5 percent.

Real estate management is connected with the owners' responsibility for real estate, its long-term existence, maintenance of the property and all related processes. One of the most important risks in facility management is fire risk.

The Latvian Ministry of Economics implements many construction projects using public funds (The Ministry of Economics of the Republic of Latvia, 2017). All of these buildings and structures could potentially be at risk of fire.

The Cabinet of Ministers determines the procedure as to how the State Fire and Rescue Service carries out and manages firefighting and rescue work in Latvia. The Fire Safety and Firefighting Law, Article 10, paragraph one, establishes that "the owner (possessor), manager, lessee or, in accordance with the agreement, other user of the building, structure, parts thereof or land parcel, who is responsible for fire safety at the object, has a duty to ensure compliance with fire safety requirements laid down in the laws and regulations" (Cabinet of Ministers, 2013).

The number of fires can influence house prices in the market. For example, Eriksen and Carson (2017) constructed panel data of house prices in the USA and correlated decreases in local house prices with the total number of fires and calculated the probability of determined causes of accidental fires.

Many authors also tried to explore the situation with fires in their own countries. For example, fire prevention and cross sector collaboration in Norwegian municipalities (Halvorsen, K., Almklov, P. G. & Gjøsund, G., 2017;), or fire safety management and fire insurance in public buildings in China (Zhai, FY& Xie, LL., 2011).

The authors agree that one of the most important aspects of human fire safety in the event of fire is the possibility of safe escape (Kobes et al. 2010; Hoyos & Zimolong, 2014). Various fire safety facilities and fire protection systems provide independent and adequate response and fire safety for the building's users.

Many countries have their own codes and standards associated with fire safety. For example, Procedures for development and revision of codes and standards associated with fire safety in the USA were investigated by Hirschler (2017).

¹Corresponding author. Tel.: +371-26377888. E-mail address: nikolajs@adarbnica.lv

²Corresponding author. Tel.: +371-29492724. E-mail address: Tatjana.Tambovceva@rtu.lv

However, the practice shows that the measures required by the law do not always provide the support that people need in burning buildings. Therefore, it is very important to study and understand the behaviour of people in the event of fire and fire evacuation. This can help prevent incidents and improve fire safety (Kobes et al, 2010).

Many authors have explored ways of reducing the risk of fire injury and promote fire prevention. They mention smoke alarms, which can reduce the risk of dying in house fire (Rohde, D. et al, 2016; Marshall, SW. et al, 1998; Runyan, SW. et al, 1992).

However, very often people ignore fire protection standards established in the country; this happens both at workplaces and in homes. To promote fire safety requirements it is necessary to educate people and to give them specific knowledge and skills. Fire safety regulations state that any person has the obligation to prevent a fire, report the fire to a responsible institution, and to know how to act in the event of a fire. During a fire, it is important that people do not lose the ability to quickly make the right decision how save themselves, their family members, neighbours and their property. Public opinion taken from a number of surveys shows that people trust the State Fire and Rescue Service, positively assess its work, and are always grateful for saving their lives and property.

Malahova, Ievins and Ketners (2017) evaluated the creation of voluntary fire safety, firefighting and rescue service models at a municipal level in the Republic of Latvia.

It is known that most fires usually occur in the cold season when heating appliances are used. For various reasons, the heating season may not start on time, and as a result some people tend to use other home heating solutions, such as using different electric heaters, or heating a home with a gas stove or oven. In turn, private house owners have fire stoves and fireplaces. Such home appliances and equipment can often cause fires and result in major loss (Malahova J., Jemeljanovs V., Ketners K., 2017).

The purpose of the study is to investigate statistics of fires in Latvia during the study period for 5 years from 2012 to 2017 and to find the main causes of fires and potential ways of improving the situation. To achieve the purpose of the research the authors set following tasks: to collect information about number of fires in Latvia from 2012 to 2017; to analyse main causes of the fires; to suggest some potential improvement steps.

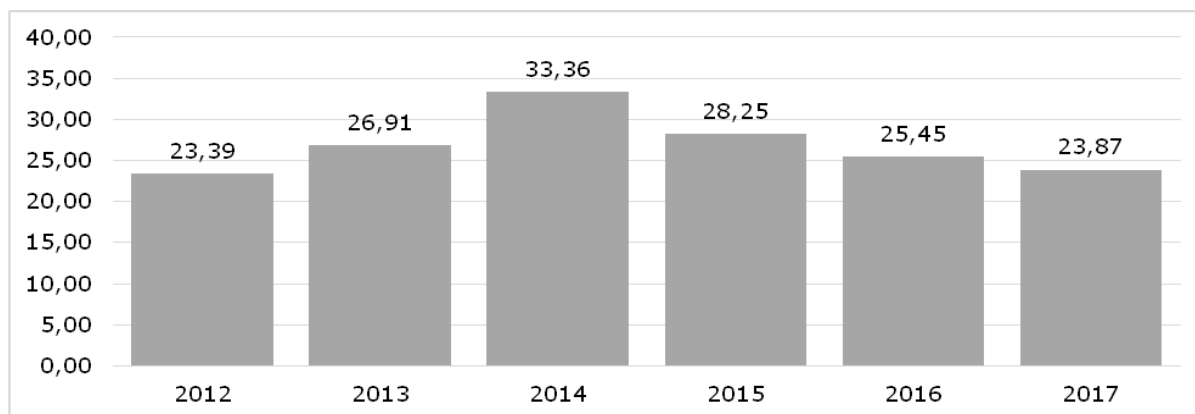
The research is very topical and significant. This is determined by the fact that the solution of the fire safety problem, as well as the development of fire safety activities in the construction sector, real estate management and insurance affects the social and economic development of the country.

Research Results and discussion

The authors have investigated the number of the fires, the main reasons for fires and the different causes of the fire.

The cause of many fires is burnt soot. The State Fire and Rescue Service published information that burnt soot was the cause of 598 fires in 2014 and 588 fires in 2015 (Leta, 2014).

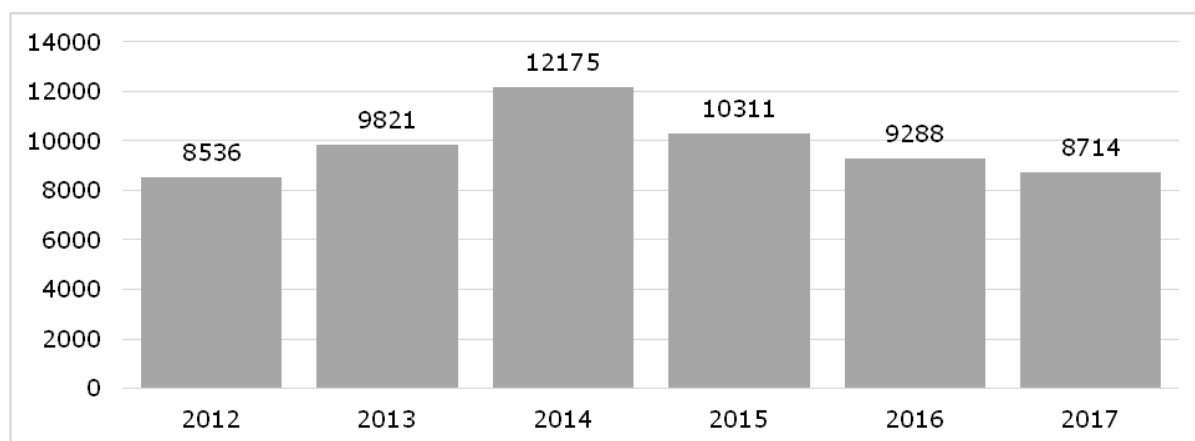
Figure 2 shows the average number of fires per day during the period from 2012 to 2017.



Source: author's calculations based on the State Fire and Rescue Service (2018)

Fig. 2. Average number of fires per day in Latvia from 2012 to 2017

The number of fires in Latvia every day is between 23 and 33. In the opinion of the authors this number is very high for Latvia. Figure 3 shows the total number of fires in Latvia from 2012 to 2017.



Source: author's calculations based on the State Fire and Rescue Service (2018)

Fig. 3. The total number of the fires in Latvia from 2012 to 2017

As we can see from Figure 2 and Figure 3, the number of fires decreased during the last four years by approximately 3,500 fires. This can be considered as a positive trend.

There are many reasons for fire, therefore the authors have decided to categorise fire risks into following groups:

- careless handling of fire,
- heating systems,
- firesetting,
- phase fault,
- electrical and other equipment,
- children playing with fire,
- lightning,
- other reasons.

Fire occurrences grouped by causes of the fire in Latvia in the period from 2012 to 2017 are summarised in Table 2.

¹Corresponding author. Tel.: +371-26377888. E-mail address: nikolajs@adarbnica.lv

²Corresponding author. Tel.: +371-29492724. E-mail address: Tatjana.Tambovceva@rtu.lv

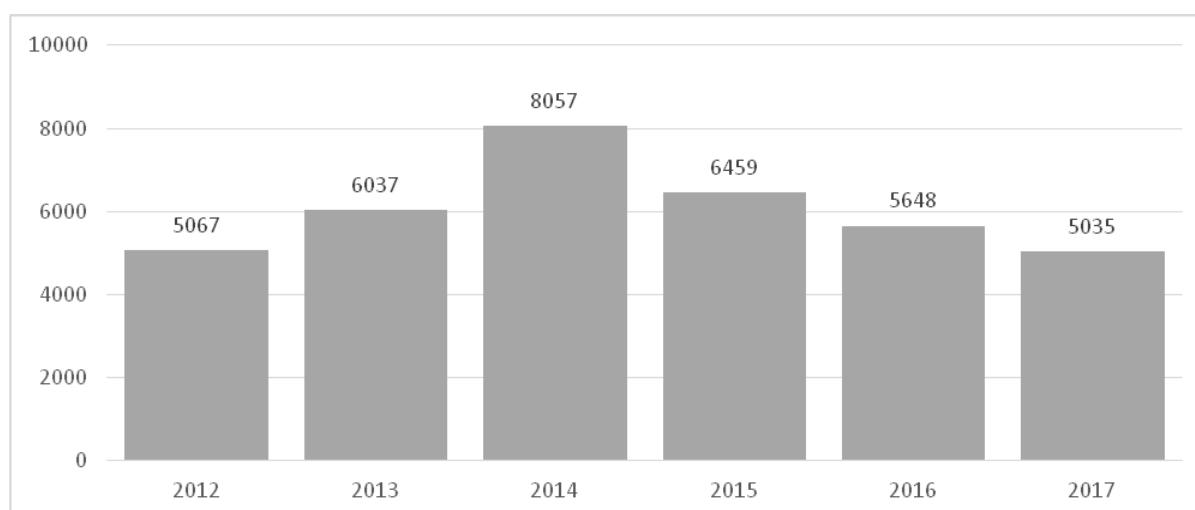
Table 2

Causes of fire from 2012 to 2017

Causes of fire/year	2012	2013	2014	2015	2016	2017
Careless handling of fire	5067	6037	8057	6459	5648	5035
Heating systems	1099	949	1020	903	921	1053
Firesetting	836	1227	1444	1388	1157	1125
Phase fault	718	774	794	776	805	765
Electrical equipment / equipment	312	349	361	308	330	298
Children playing with fire	107	87	68	68	39	68
Lightning	31	49	53	16	27	10
Other reasons	254	343	371	388	361	360
unspecified reasons	112	6	7	5	0	0

Source: The State Fire and Rescue Service (2018)

Table 2 data shows that the main reason for fires is the "careless handling of fire" – over 60 percent every year during the study period. The second cause of the fire is "firesetting" – it changes from 10 percent to 13 percent per year, mostly in the heating season. "Heating" is in third place – about 8 percent – 13 percent per year from total number of fires. "Phase fault" is in fourth place – about 8 percent of the total number of fires per year. There are many causes that could come under the heading "Phase fault", eg. fault of household equipment, commercial and manufacturing equipment, and others.



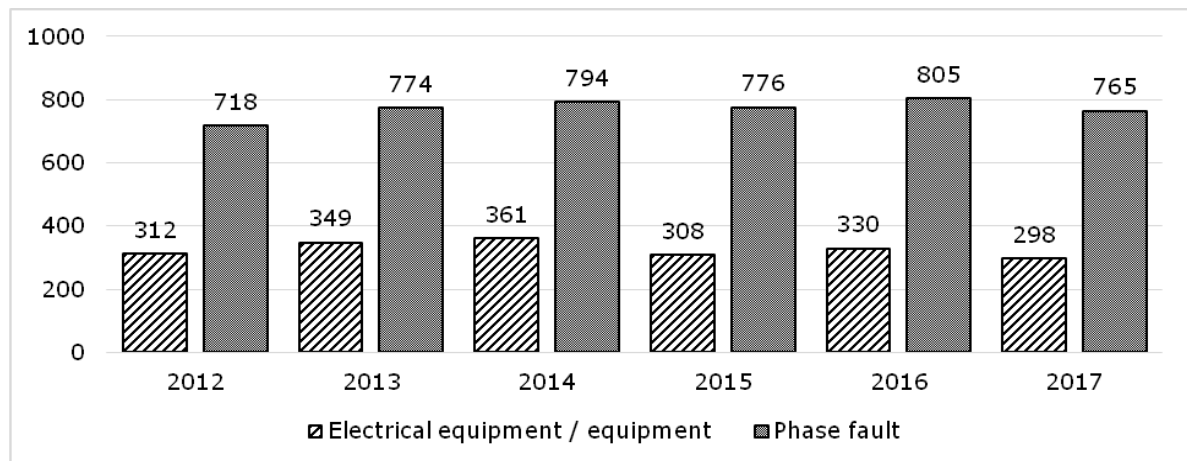
Source: author's calculations based on the State Fire and Rescue Service (2018)

Fig. 4. Careless handling of fire from 2012 to 2017

Figure 4 shows the number of instances of careless handling of fire during the study period from 2012 to 2017. The number varies between 5000 and 8000 per year. The results could be related to the low culture of fire safety in society in Latvia.

¹Corresponding author. Tel.: +371-26377888. E-mail address: nikolajs@adarbnica.lv

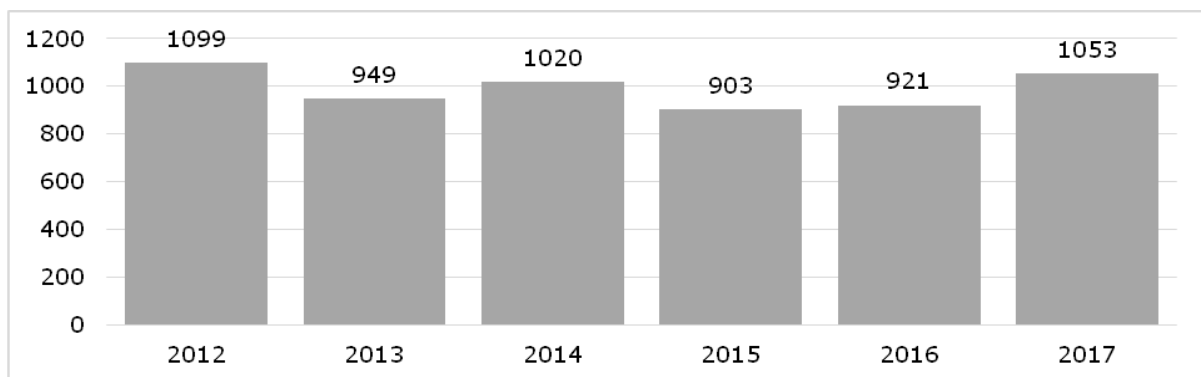
²Corresponding author. Tel.: +371-29492724. E-mail address: Tatjana.Tambovceva@rtu.lv



Source: author's calculations based on the State Fire and Rescue Service (2018)

Fig. 5. Number of fires caused by Electrical equipment and Phase fault from 2012 to 2017

Figure 5 illustrates the number of fires caused by electrical equipment and phase fault. Every year of the study period the number of fires caused by phase fault was over 700, and the number of electrical equipment fault fires was over 300. Every day in Latvia two fires are caused by phase fault and one by electrical equipment. The authors believe that people in Latvia must pay more attention to the use of both commercial and household electrical equipment.



Source: author's calculations based on the State Fire and Rescue Service (2018)

Fig. 6. Number of fires caused by Heating from 2012 to 2017

Figure 6 shows the number of fires caused by heating systems. Every year of the study period heating appliances caused more or less 1000 fires. One of main reasons is the fire safety in real estate management and long-term existence of property is correct and safe operation, maintenance and inspection of heating system. On average, every day three fires in Latvia are caused by heating systems.

Many authors suggest using the Building Information Modeling (BIM) as an integrated smart monitoring technique and modern tools for planning of fire safety, providing early detection and alarm responses, directing efficient evacuation, facilitating fire rescue and controlling efforts (Cheng, MY. et al, 2017; Sanches, L., Hippert, MA. & Abdalla, GF., 2016; Wang, SH. et al, 2015; Wang, B., 2014). Unfortunately, in Latvia BIM is at the initial stage of development and use in the design of buildings. The authors hope that its development will help prevent fires and offer future solutions.

¹Corresponding author. Tel.: +371-26377888. E-mail address: nikolajs@adarbnica.lv

²Corresponding author. Tel.: +371-29492724. E-mail address: Tatjana.Tambovceva@rtu.lv

Conclusions, proposals, recommendations

- 1) The total number of buildings from 2012 to 2017 is between 1.377 million to 1.4 million, and this figure remains virtually unchanged during the study period.
- 2) During the study period from 2012 to 2017 there were approximately 8,000 to 12,000 fires, with this figure decreasing for the last four years decreased by around 3,500 fires from 12175 to 8714. This can be considered as a positive trend.
- 3) The three main causes of fires are: careless handling of fire (over 60 percent), firesetting (varies from 10 percent to 13 percent) and heating (about 10 percent to 13 percent) per year from the total number of fires.
- 4) The State Fire and Rescue Service of Latvia should promote fire safety precautions in the mass media and publish all data about number of fires and their causes. This will elevate fire safety as an issue in society.
- 5) The State Fire and Rescue Service of Latvia should discuss with the government the development of rules for inspecting heating systems once per year or once every two years in every building. Such rigorous inspection would decrease the number of fires caused by heating appliances and improve the safety of property in the long-term.
- 6) The Ministry of Education and Science should take an active role in developing educational programmes in schools and high schools to make students aware of fire safety prevention. This policy would become more effective in the coming years, thus reducing the number of fires.
- 7) To enforce state laws and regulations regarding fire safety, the State Fire and Rescue Service of Latvia should improve their monitoring and prevention procedures, improve the professional knowledge and skill of staff, ensure the installation of compulsory firefighting equipment, as well as taking part in public activities to promote fire safety.
- 8) Fire safety requires a comprehensive approach and this issue has to be dealt with in connection with a number of other existing problems in the country.
- 9) As one of the modern tools for fire prevention, the Building Information Modeling (BIM), which is an integrated smart monitoring technique, could be used to provide early detection and alarm responses, manage effective evacuation, and facilitate fire rescue and controlling efforts.

Bibliography

1. Cabinet of Ministers, Fire Safety and Fire-fighting Law. (Last amendments 2013). Retrieved: <http://www.likumi.lv/>. Access: 02.02. 2018.
2. Cheng, MY., Chiu, KC., Hsieh, YM., Yang, IT., Chou, JS., Wu, YW. (2017). BIM integrated smart monitoring technique for building fire prevention and disaster relief. *Automation in Construction*, Volume 84, pp. 14-30.
3. Eriksen, M.D. & Carson, J.M. (2017). A burning question: does arson increase when local house prices decline? *Journal of Risk and Insurance*, Volume 84, Issue 1, pp. 7-34.
4. Halvorsen, K., Almklov, P. G. & Gjørund, G. (2017). Fire safety for vulnerable groups: The challenges of cross-sector collaboration in Norwegian municipalities, *Fire Safety Journal*, Volume 92, pp. 1-8.
5. Hirschler, MM. (2017). Procedures for development and revision of codes and standards associated with fire safety in the USA. *Fire and Materials*, Volume 41, Issue 8, pp. 1058-1071
6. Hoyos, C. G., Zimolong, B. M. (2014). Occupational Safety and Accident Prevention. *Behavioral Strategies and Methods*, Volume 11, p. 226
7. Kobes, M., Helsloot, I., de Vries, B., G. Post, J.G. (2010). Building Safety and Human Behaviour in Fire: A Literature Review, *Fire Safety Journal*, Volume 45, Issue 1, pp. 1-11.
8. Leta, Sogad jau 361 ugunsgrēks, kuru iemesls sodreji dumvada.(2014.) Retrieved: http://www.tvnet.lv/zinas/latvija/528720-sogad_jau_361_ugunsgrēki_kuru_iemesls_sodreji_dumvada. Access: 20.12.2017.
9. Malahova, J., Ievins J., Ketners, K. (2017). Firefighting and rescue solutions for rural areas of the republic of Latvia. *Proceedings of the 2017 International Conference "Economic science for rural development"* No 45 Jelgava, LLU ESAF, 27-28 April 2017, pp. 134-139

¹Corresponding author. Tel.: +371-26377888. E-mail address: nikolajs@adarbnica.lv

²Corresponding author. Tel.: +371-29492724. E-mail address: Tatjana.Tamboveca@rtu.lv

10. Malahova, J., Jemeljanovs V., Ketners, K. (2017). Use of preventive measures for reduction in the number of fires: possible solutions. *Proceedings of the 2017 International Conference "Economic science for rural development"* No 45 Jelgava, LLU ESAF, 27-28 April, 2017, pp. 140-148
11. Marshall, S.W., Runyan, C.W., Bangdiwala, S.I., Linzer, M.A., Sacks, J.J., Butts, J.D. (1998). Fatal Residential Fires: Who Dies and Who Survives? *JAMA*, Volume 279, Issue 20, pp. 1633-1637.
12. Ministry of Economics of Republic of Latvia. (2017). Apkopoījums par būvniecības iecerēm, kuras paredzēts īstenot par publiskiem līdzekļiem (A summary of construction plans to be implemented on public funds). Retrieved: https://www.em.gov.lv/lv/nozares_politika/buvnieciba/statistika__petijumi/
13. Rohde, D., Corcoran, J., Sydes, M., Higginson, A. (2016). The Association between Smoke Alarm Presence and Injury and Death Rates: A Systematic Review and Meta-Analysis, *Fire Safety Journal*, Volume 81, pp. 58-63
14. Runyan, C.W., Bangdiwala, S.I., Linzer, M.A., Sacks, J.J., Butts, J. (1992). Risk Factors for Fatal Residential Fires. *National Center for Biotechnology Information*, Volume 327, Issue 12, pp. 859-863.
15. Sanches, L., Hippert, MA. & Abdalla, GF. (2016). BIM as a support for the design process with fire safety regulations. *12th International Symposium on Occupational Safety and Hygiene of Portuguese-Society-of-Occupational-Safety-and-Hygiene (SHO)*, Guimaraes, Portugal, 23-24 March, 2016, pp. 185-190.
16. State Fire and Rescue Service of Latvia. (2018). Retrieved: <http://vugd.gov.lv/lat/aktualitates/statistika> Access: 30.01.2018.
17. State Land Service. (2017). Latvijas republikas būvju pārskats 2016 (Report of buildings in Republic of Latvia in 2016). Retrieved: http://www.vzd.gov.lv/files/buvju_parskats_2017.pdf
18. Zhai, FY & Xie, LL. (2011). Research on the Safety Management of Fire in Public Buildings. *Proceedings of 2011 International Conference on Construction and Real Estate Management*, Guangzhou, 19-20 November, 2011, Volume 1 and 2, pp. 291-294.
19. Wang, SH., Wang, WC., Wang, KC., Shih, SY. (2015). Applying building information modeling to support fire safety management. *Automation in Construction*, Volume 59, pp. 158-167.
20. Wang, B., Li, HJ., Rezgui, Y., Bradley, A., Ong, HN. (2014). BIM Based Virtual Environment for Fire Emergency Evacuation. *Scientific World Journal*, No. 589016.

ANALYSIS OF AID GUIDELINES AIMED FOR DEVELOPMENT OF BUSINESS ENVIRONMENT ATTRACTIVENESS IN PIERIGA REGION

Baiba Rivza¹, Dr.habil.oec., prof.; Ligita Azena², Mg.sc.soc.
^{1,2} Latvia University of Life Sciences and Technologies,

Abstract. Support for development of business environment is oriented to attract local and foreign investments, promote creation of new businesses and support existing ones, create new jobs and decrease the flow of workforce to other territories. It is important to tailor territorial support guidelines to each individual territory, thus defining the direction of its development and potential specialisation. The study aims to analyse aid guidelines aimed for development of Riga Planning Region business environment attractiveness. The tasks of the study were to: 1) establish the business environment support guidelines according to Sustainable Development Strategy of Latvia until 2030 and regional political guidelines 2013-2019; 2) analyse business environmental aid guidelines, which are defined by the Riga Planning Region (henceforth - RPR) development programme 2014 – 2020 and strategic programmes of Pieriga region. Research method: document analysis.

Keywords: territorial development, regional developmental support guidelines, regional business environment.

JEL code: O11, O18

Introduction

Development of large cities dictates the need to increase the economic activity in these territories, by attracting resources of nearby territories, supporting entrepreneurship, development of transportation and Information and Communication technology (ICT) infrastructure, developing the potential of education institutions and promoting the mobility of workforce. This promotes creation of new businesses and jobs, stimulating living and working near large cities.

Territorial support guidelines:

- 1) development of business infrastructure (industrial areas, transport and communication infrastructure for business territories, resort areas etc.) according to the territorial specialisation as per regional municipalities guidelines;
- 2) availability of quality services in line with a set of publically available individual services according to the type of international, national and regional development centre;
- 3) maintenance and development of transport infrastructure, including service and job accessibility for people living in the regions (Regional Policy Guidelines, 2013-2019)

The most significant common regional development problem, characteristic of the whole country is the disparities in socioeconomic development between different regions. This is due to several reasons. Primarily, this is caused by low business activity and incomplete prerequisites to increase it in the regions. A significant problem is inadequate regional government infrastructure and the lack of regional government capacity to work with entrepreneurs. At the same time, due to insufficient mandate, regional governments lack the freedom to carry out flexible solutions considering individual situations, including available resources and territories, when attracting entrepreneurs.

The study aims: to analyse aid guidelines aimed for development of the Riga Planning Region business environment attractiveness. To achieve the goal, it was put forward: 1) to find out what the business environment supporting guidance is set in Sustainable Development Strategy of Latvia until 2030 and Regional Policy Guidelines 2013- 2019; 2) to collect business environmental aid guidelines, which are defined by Riga Planning Region (hereinafter - RPR) Development Program 2014-2020 and Pieriga region's strategic and action programs. Research methods: analysis of documents.

¹Corresponding author. E-mail address: baiba.rivza@llu.lv.

²Corresponding author. E-mail address: azenaligita@gmail.com

Hypothesis - business environmental aid guidelines are the basis of areas of specialization and economic development of Latvia. The object of the research - strategic document analysis. The authors set research objectives: 1) to analyse strategic documents related with the business environment aid guidelines RPR; 2) to assess achievable RPR economic indicators and profiles based on business environmental aid guidelines.

Material and methods

The Ministry of Economics of Latvia (henceforth- LR EM) has issued a report on business and environment. According to this report, based on provisional data for 2016, there were 129.12 thousand economically active individual merchants and commercial companies in Latvia (excluding farmer or fishermen companies and self-employed persons). 99.6 % of the above can be categorised as small or medium-sized enterprises (henceforth SME). Division of SMEs in Latvia is as follows: microenterprises – 89.6 %, small enterprises – 8.9 %, medium-sized enterprises – 1.5 %. A significant indicator of economic activity is the number of enterprises per 1000 people. In the last 10 years, this number has steadily increased from 17 in 2001 to 83 in 2014 (LR EM, 2016.)

In Latvia, just like elsewhere in Europe, SMEs significantly contribute to economy, GDP, unemployment rates.

In 2016, more than half (54.6 %) of economically active market sector statistical units were operating in RPR; 54.6 individual merchants and commercial companies per 1000 inhabitants, yet in other planning regions this number was 2 to 3 times lower. In 2016, 68 % of jobs in the country were in RPR according to the Central Statistical Bureau of Latvia (henceforth – CSP) data. Regions outside Riga have a significantly larger number of self-employed persons (in RPR – 24 %, other regions – 40-52 %) and individual merchants, as well as a significantly higher unemployment rate (in the beginning of 2013 RPR 4.9 %, other – 7.4-13.7 %), giving evidence of the lack of employers in the regions.

A significant factor that directly impacts the socio-economic development in the regional municipalities is availability (the upkeep and accessibility of transport infrastructure). According to the Latvia Ministry of Transport and Communications data, approximately 50 % of paved roads were in poor or very poor state (including 48.1 % of the main roads, 54.3 % of the regional roads and 47.3 % of the local roads (2011 data). 25 % or 2 069 km of paved roads can be classified as collapsed and in need of complete reconstruction (2010 data). This condition of transport infrastructure limits workforce mobility, thus making territories further away from the capital unattractive to live or carry out business (transportation of manufactured goods to the retailer, wholesaler or larger transportation hubs (rail, port etc.) is problematic and requires a significant amount of time etc.) (RPR, 2010).

Although Riga is significantly more developed than other Latvian cities, compared to similar cities in the neighbouring countries the development indicators are not too high. Riga GDP (PPP) per capita is 90 % of the average level of the Baltic Sea region capital cities scoring lower than Tallinn, in which this indicator is 96 %. This shows an untapped development potential – it is essential to promote development of Riga and other regional cities at a political level, thus driving economic activity, innovation development, improve accessibility of services (Riga as the main driving force of Latvia national development and other regional towns' development driving force of Latvian regions).

¹Corresponding author. E-mail address: baiba.rivza@llu.lv.

²Corresponding author. E-mail address: azenaligita@gmail.com

In the Sustainable Development Strategy "Latvia 2030", specific issues and challenges as well as a multitude of opportunities for development have been laid down. In the Riga Metro area (Pierigass region), the present development of transport and road infrastructure has not been able to keep up with a sharp increase of traffic. Between 2003 and 2016, the population of Riga planning region has increased by 2.6 % (CSP provisional data), thus increasing the workload to infrastructure. In the meantime, there is a trend to move from Riga to the neighbouring regions with Riga remaining only as a place to work, study and spend leisure time. This is a reason for an increased traffic flow to and from the capital. Between 2000 and 2010, the number of privately owned vehicles in Riga has increased by more than 60 %. In the last 10 years, the number of vehicles entering Riga every day has doubled. This causes visible traffic congestion, decreasing the movement of workforce and tourists, increasing environmental pollution. Therefore, Riga city and surrounding territory infrastructure requires development as well as improvement of public transportation system.

In Latvia regional policy, new target territories or territorial focus has been placed to promote business development and investment in the regions, emphasising involvement of many parties to achieve regional political goals (Latvia- 2030).

Research results and discussion

Improvement of business environment in local and regional levels

In promotion of regional development, the most significant aspect is economic activity – creation of businesses and jobs to provide employment opportunities and associated wealth for local inhabitants. This decreases the risk of depopulation as well as provides income for regional governments in form of taxes. Increased income from taxation allows to invest in development of infrastructure thus increasing overall quality of life. Territorial development from the economic point of view is a fight for growth resources (human resources, investments etc.) to acquire the critical mass of resources for development.

To create prerequisites for economic development at the local and regional levels, the following activities will be carried out:

- 1) Identification of available resources and specialisation of a certain territory;
- 2) Territorial recognition – branding and marketing linked to local initiatives and specialisation, thus creating a uniform and easily recognisable territorial identity;
- 3) Regional municipalities will be provided with investments to assist with maintenance and development of infrastructure and to attract local and foreign investment, thus promoting creation of new businesses and expansion of current businesses in regions;
- 4) Increase the capacity of regional governments and planning regions to promote innovative entrepreneurship with high added value and the efficient and creative use of local resources (emphasis on "small" innovations and everyday creativity, per "Latvia 2030" guidelines);
- 5) Improvement of business environment at a local scale, including reduction of bureaucracy and administrative burden etc. (Latvian regional economic development prospects and trends from 2014 to 2020).

The task that is closely related to service and business development is that maintenance and improvements of transport infrastructure providing accessibility of jobs and services and allowing businesses easily transport their production etc. The issue of accessibility can be solved also by

¹Corresponding author. E-mail address: baiba.rivza@llu.lv.

²Corresponding author. E-mail address: azenaligita@gmail.com

reducing the need to commute in certain situations (e-services, distance working etc.) (Law on the National Industrial Policy Guidelines for 2014 to 2020).

Support for Riga planning region

The aim: to create all the prerequisites for RPR to become a Northern European metropolis, this is attractive to live in, to invest in, and to travel to. Riga successfully functions as part of the Baltic Sea region, thus increasing the global competitiveness of the whole macro region.

Support directions:

- 1) Improvement of state transport infrastructure, making Riga more accessible;
- 2) Improvement of transport infrastructure and public transportation system in the Riga city;
- 3) Reconstruction and development of multifunctional objects in Riga to promote cultural, sport and other events of national and international scale, promote tourism and resort development.

The role of regional governments and planning regions in the business development

As mentioned above, at the present moment business activity is largely concentrated in the capital city and the surrounding territories, which suggests that resources in the regions are underused and there is a potential for development. The activity of the public sector to attract local and foreign investment and to develop economic activity is fragmented and insufficiently effective at the moment. Institutions at the national level lack detailed information of specific issues problems and potential of each individual territory. For this reason, national support mechanisms cannot efficiently promote business development in the regions. Involvement of regional governments is necessary because they are the most aware of the local specifics and situation. Because of this, the role of local and regional level to promote economic activity will be increased.

To promote the increase of economic activity, an efficient use of available resources, the following actions will be taken during the guideline development. To enhance the role of regional municipalities in business promotion, it is necessary to:

- 1) Improve laws and regulations, to allow greater freedom for regional governments to manage their property and resources for the common interests of the local communities;
- 2) enhance and diversify the options for local governments to support entrepreneurs;
- 3) increase the capacity of local governments to attract investment (incl. support for events at a local and regional scale to attract investors and promote small innovation in the territories);
- 4) Improve the business environment in regional governments, including lessening of the state administrative burden for entrepreneurship. (RPR, 2014).

The business card of Riga planning region

RPR is the region of the capital city of Latvia. Geographical location in the centre of Baltic States and on the border of European and eastern cultures has carved Riga region as a bridge between different countries and their people. The region is characterised by the dynamic capital city of Riga, organically including influences from different nations. Other cities of the region – Jūrmala, Limbaži, Tukums, Ogre and Sigulda – as well as the pure countryside, are important as well. Riga Gulf of the Baltic Sea and the long coastline as well as the inner waters are of special value to the region. (Fig. 1)

Socio-economic, technological, and scientific development is defined by the centre of national, international, and European importance – Riga city and Riga Metropolitan area. The functional

¹Corresponding author. E-mail address: balba.rivza@llu.lv.

²Corresponding author. E-mail address: azenaligita@gmail.com

space of the region significantly exceeds the physical borders of the region. Strategically significant geographical location of the region, high ability of inhabitant attraction and comparatively large market capacity form the economic potential of the region promote national development. The most important elements of cultural, educational, scientific, sport, healthcare, and transport infrastructure of the state are concentrated in the Riga Metro region. RPR economic indicators are shown in Table 1.

Table 1.

Pierīga planning region economic profile

Territory	Area 10 437 km²	Local governments 30	Republic cities 2 Riga, Jurmala
	Coastline 185 km	Regional centres 4 Tukums, Ogre, Sigulda, Limbazi	
Inhabitants	Population(2017) 1 097 419	Net population change (2017) -1,9 %	
	Population density 105 ppl/km ²	in Riga 165 ppl/km ²	
Economic	IKP (2014) 16 154 EUR per capita.	Income tax (2014) 585 EUR/pers.	
	Number of enterprises (2015) 106 882	Average wage (2016) 934 EUR	

Source: author's calculations based on statistics (CSP, RPR, 2017)



Source: RPR

Fig. 1. Administrative division of Riga planning region (RPR)

RPR Sustainable Development Strategy 2014-2030 and RPR Development Programme 2014-2020 are framed by three strategic goals:

- 1) Socially inclusive cohabitation of prosperous communities;
- 2) Knowledge-based, green, innovative and elastic economy;
- 3) Ecologically tolerant lifestyle and environment;

and eight linked and mutually integrated long- and medium-term priorities:

- 1) Vital natural movement and migration;
- 2) Self-sufficient communities;
- 3) Elastic and excellent education;
- 4) Globally competitive business areas;
- 5) Excellent traffic organisation, infrastructure and logistics;
- 6) Regional governments push for development;
- 7) Sustainable living environment;
- 8) Smart development.

RPR economy is dominated by service businesses with the associated areas – sales, professional services, property market. Each of these areas individually makes up more than 10 % of the total

¹Corresponding author. E-mail address: baiba.rivza@llu.lv.

²Corresponding author. E-mail address: azenaligita@gmail.com

economy of Riga region. Sales come close to a quarter. Significant portions in the total economy are taken up by agriculture, construction, and transport and storage businesses. Processing manufacturing take up 6 % of the total economy of Riga region (RPR, 2014).

Based on the data of the State Regional Development Agency, RPR exhibits more optimistic indicators of economic development than the rest of the country. For example, nationwide unemployment rate in the beginning of 2013 was 7.278 %, whereas in the RPR this figure was only 4.9 %. According to the Central Statistical Bureau data, RPR has the highest average wage in the country. The average wage reached a low point in 2010, following the economic crisis of 2008 when it was 633 EUR/month nationwide and 700 EUR/month in the RPR. In 2013, wages had risen to 785 EUR/month in Riga and 716 EUR/month nationwide (RPR, 2014)

- Each Riga and Riga region territory has its own characteristics and specific traits and issues. Some of these are the following:
- Potential of regional centres significantly exceeds the potential of other small towns;
- High concentration of workforce, business activity, other economic and social activity;
- Large number of economically active businesses, relatively low unemployment, large amount of foreign investment;
- Availability of services (education, culture, knowledge, social, healthcare and other areas).

RPR generates 2/3 of the whole GDP. Objective positions of RPR in Latvia are directed by regional specialisation in provision of services, such as education, healthcare, government, finances and sales. There are some areas that are localised due to historical reasons and not because of the "capital city effect", such as woodworking, chemical manufacturing, metalworking, tourism. RPR economic indicators and expected specialisation trends are shown in Table 2.

Table 2.

RPR economic indicators and specialisation, expected trends

Parameter	Base value		2016	2020	2030
	Year	Value			
Population	2013	1 090 303	1.1 mil	1.05 mil	1.1 mil
Rate of natural increase	2012	- 2 563	- 2 000	- 1 500	0
Net migration	2012	- 3 816	- 2 500	0	+ 2 500
Average wage (EUR)	2013	785	850	1 000	1 200
Unemployment (%)	2013	4,9	≤ 5 %	≤ 5 %	≤ 5 %
GDP per capita (EUR)	2010	11 690	+ 5 %	+ 7 %	+ 10 %
Economically active statistical units of the market sector	2011	77 662	+ 5 %	+ 15 %	+ 30 %
Number of active innovative manufacture and service businesses	2008-2010	692 (LV)	+ 5 %	+ 15 %	+ 30 %
Territories of special status to help join high technologies, manufacturing, research and education (business parks, incubators, knowledge transfer centres etc.)	2013	100 (%)	+ 30 %	+ 50 %	+ 30 %

Source: authors' calculations based on the data from Riga planning region development programme 2014-2020

Significant transport, energy, environmental, communication and information infrastructure is concentrated in Riga region. Transport infrastructure is of extreme significance – Riga port, Riga international airport, railway links, motorways, energy and power infrastructure, gas pipes and underground gas storage facilities. Investments in infrastructure are important to increase the competitiveness of the state and attract further investments. It is important to view the

¹Corresponding author. E-mail address: baiba.rivza@llu.lv.

²Corresponding author. E-mail address: azenaligita@gmail.com

infrastructure as a whole when planning funding for maintenance and development. Supporting infrastructure may differ depending on the location and investor requirements.

Business profile of Riga and other cities of the region:

- Service and business centre function;
- Different types of manufacturing agricultural products, light industry, metalworking, woodworking;
- Logistics, storage, transportation and communication hubs;
- Mining and processing of minerals;
- Recreational activities, tourism;
- Property business, construction.

Conclusions

- 1) In Latvia regional policy, new target territories, or territorial focus have been placed, to promote business development and investment in the regions, emphasising involvement of many parties to achieve regional political goals.
- 2) The most important aspect to promote regional development is the economic activity – creation of jobs and businesses because they provide employment opportunities and associated prosperity to the local inhabitants. This decreases the risk of depopulation as well as provides income for regional governments in form of taxes. Increased income from taxation allows to invest in development of infrastructure thus increasing overall quality of life.
- 3) Prerequisites for business environment development:
 - Identification of areas of existing resources and specialization (regions - economic profile) determination and strength - RPR location close to the capital, infrastructure, education, economically active population and young people in large proportion;
 - the territory reputation - brand building and marketing strategy in accordance with Riga and Pierīga territory of the territorial coverage of the characteristics and specificities;
 - investments in business support infrastructure development and improvement in accordance with Riga and Pierīga site characteristics and specificities;
 - measures to promote innovative business development in the promotion - the areas of specialization, business education, youth involvement in entrepreneurship;
 - improvement of business environment at local level, including reducing the administrative burden on operators' responsible specialist attraction in municipalities etc.
- 4) To promote entrepreneurship regional governments, need :
 - local governments greater rights to dispose of public property, and it holds the front of agreement and common interest of the local community - industrial zones;
 - to expand and diversify the local opportunities to support entrepreneurs, including collaborative efforts - municipal and private partnership in developing joint projects (housing stock, educational institutions etc.).
 - to increase the capacity of local governments to attract investments - active use and encourage traders to use the EU funds;
 - improving the business environment in municipalities and regions, including reducing of the state and local municipalities imposed administrative burdens on business - to conduct training courses for entrepreneurs.

¹Corresponding author. E-mail address: baiba.rivza@llu.lv.

²Corresponding author. E-mail address: azenaligita@gmail.com

- 5) RPR exhibits more optimistic indicators of economic development than the rest of the country, which provides wider opportunity to improve the business environment. Riga region is the hub of transport, power and energy, environmental, communication and IT infrastructure.
- 6) Each RPR territory has a defined area, characteristics and specific issues.
- 7) It is important to evaluate the supporting infrastructure, depending on location and associated specificity, to plan the specialisation of a territory in the business environment development guidelines.

Acknowledgements

Research supported from National Research programme EKOSOC-LV and Riga Planning Administration (RPR)



Bibliography

1. Competiveness Analysis of Pieriga Region of Latvia. Presentation at the 1st International Conference "Trends in Regional Development in the EU Countries 2015", Riga 2015.
2. (CSP) The Central Statistical Bureau (Centrālā statistikas pārvalde). Available on the Internet: <http://www.csb.gov.lv/statistikas-temas/metodologija/iedzivotaju-skaits-un-galvenie-demografiskie-raditaji-36803.html>.
3. Sustainable Development Strategy of Latvia until 2030 (Latvijas ilgtspējīgas attīstības stratēģijas līdz 2030.gadam). Available on the Internet: file:///C:/Users/home/Desktop/pasvaldiba/pieprigas_planosanas_parvalde/Latvija_2030.pdf (02.01.2017.).
4. Latvijas ilgtspējīgas attīstības pamatnostādnes. Available on the Internet: http://varam.gov.lv/files/text/Darb_jomas//pamatnostadnes.doc.
5. LR Ministry of Economy Report on the Business Environment (LR Ekonomikas ministrijas ziņojums par uzņēmējdarbības vidi). Available on the Internet: https://www.em.gov.lv/lv/nozares_politika/nacionala_industriala_politika/uznemejdarbibas_vide.
6. Law on the National Industrial Policy Guidelines for 2014 to 2020 (Likums par Nacionālās industriālās politikas pamatnostādņēm 2014.-2020.gadam). Available on the Internet: <http://likumi.lv/doc.php?id=257875>.
7. Regional Development of Latvia 2011 (Reģionu attīstība Latvijā 2011). Vides aizsardzības un reģionālās attīstības ministrijas Valsts reģionālās attīstības aģentūra. Available on the Internet: <http://www.vraa.gov.lv/lv/parskats/parskats2011>.
8. Regional Policy Guidelines 2013- 2019 (Reģionālās politikas pamatnostādnes 2013.-2019.gadam). Available on the Internet: file:///C:/Users/home/Desktop/konferences/promocijas_darbs/materiali/regionu_pamatnostadnes_2013-2019.pdf.
9. Riga Planning Region Development Program 2014 - 2020 (Rīgas plānošanas reģiona attīstības programma 2014 - 2020). Available on the Internet: file:///C:/Users/home/Desktop/pasvaldiba/pieprigas_planosanas_parvalde/RPR_2014-2020_Projekts_15.pdf.
10. Riga Planning Region's Economic Profile (Rīgas plānošanas reģiona ekonomikas profils). Available on the Internet: file:///C:/Users/home/Desktop/pasvaldiba/pieprigas_planosanas_parvalde/RPR_2014-2020_Projekts_15.pdf.
11. Riga Planning Region Sustainable Development Strategy 2014 - 2030 (Rīgas plānošanas reģiona ilgtspējīgas attīstības stratēģija 2014 - 2030). Available on the Internet: file:///C:/Users/home/Desktop/pasvaldiba/pieprigas_planosanas_parvalde/RPR_2014-2020_Projekts_15.pdf.
12. Riga Planning Region of the Current Situation Description and Analysis (Rīgas plānošanas reģiona pašreizējās situācijas raksturojums un analīze). Available on the Internet:

¹Corresponding author. E-mail address: baiba.rivza@llu.lv.

²Corresponding author. E-mail address: azenaligita@gmail.com

file:///C:/Users/home/Desktop/pasvaldiba/pieprigas_planosanas_parvalde/RPR %20Pasreizejas %20situacijas %20raksturojums.pdf.

SEGMENTATION OF THE EU COUNTRIES IN TERMS OF THE SHEEP PRODUCTION

Tomasz Rokicki¹, PhD, habil.; **Marcin Ratajczak²**, PhD
^{1,2}Warsaw University of Life Sciences

Abstract. The main objective of the studies was to recognize changes taking place in sheep population on the country level in the European Union with special consideration of differentiation present before, during and after the economic crisis the climax of which took place in 2009. Studies have been performed on group included all the countries which belonged to the EU as of 31.12.2013, these were 28 Member States. Data assumed for studies concerned years 2007-2013. In the years 2007-2013, the periods of stabilization (2007-2008), economic crisis (2009-2010) and economy reconstruction (2011-2013) took place that allowed to observe changes as a consequence of stronger stimuli. The sources of the materials were literature, data and statistical analyses from EUROSTAT and FAMU/FAPA. For the purposes of the analysis of the materials, authors used segmentation methods: Ward's method, k-Means, logistic regression model based on the so-called cumulative logits, Random Forests, Gradient Boosting. For materials presentation, authors used descriptive, tabular and graphical methods. Studies carried out allowed to show specific mechanisms of agricultural activity relocation and factors which influence on it. Sheep farming measured with the sheep population was subject to gradual relocation from the countries of the highest agricultural as well as social and economic development to the areas less developed within the scope was confirmed.

Key words: segmentation of countries, EU countries, sheep production, sheep population.

JEL code: F15, O11, Q10

Introduction

Sheep farming is the activity of diversified importance in the given countries of the European Union, however with dominating meat performance. Without a detailed analysis it is easy to find information about countries which maintain the biggest sheep population. There are not, however, more extensive studies which would present the types of changes which take place in the sheep farming and their reasons. In the given countries, there are analyses performed on the situation in the national sheep farming, as e.g. in the work of Rokicki, Gruszecki and Szymanowska (2014), without, however, sufficient studies concerning all countries of the EU. There are comparisons of situations in a few neighbouring countries available which have similar specificity of sheep farming but the analysis refers to comparison in pairs as e.g. in the article of Weglarzy and Skrzyżala (2012) on Poland and Slovakia. More advanced studies are rarely carried out. An example may be the work of Montossi and others (2013). The problem of insufficient consideration in the analysis of sheep farming is especially present in the countries which maintain small sheep population. Poland is an example as there are not many researchers who deal with economic aspect of sheep farming here.

Sheep farming in the countries of the EU is carried out with the use of many sheep species and in various environmental conditions. Sheep are very plastic animals which can adjust to extreme environmental conditions (Rokicki, 2015, 2016). In the analysis, however, only those factors which were connected with agriculture, sheep farming as well as social and economic factors were taken into account. In the studies, the importance of social and economic factors is often neglected as e.g. in the article of M. Smigla (2013) but there are some significant dependencies between them and the production. The market of sheep meat in the EU is not balanced and shortages are observed. Moreover, in the years 2007-2013 the reductions of production were noted so as of the meat consumption. The level of self-supply increased, although still it was lower than 90 %. Such a situation leads to the fact that sheep farming in many countries may be developed as on the

market there is still demand for lamb. The import of frozen meat of worse quality than the one obtained in the EU was necessary.

Primitively, it was also thought that there are only a few factors that influence on the region (country) and market development. The opinion was shared by researchers starting from Thünen (1826), Launhardt (1882), Weber (1914). With subsequent studies, the list of factors increased (Marshall (1890), Christaller (1966), Lösch (1954)) and finally, for the purposes of the analysis, apart from agricultural and economical parameters also social variables were accepted (Isard, 1956; Boudeville, 1972). Attention was paid to infiltration and mutual stimulation of the factors what, as a consequence, leads to both, agricultural as well as social and economic development (Myrdal and Sitohang, 1957). Attention was also paid to the relations between the countries of various development level. The most intensive production was at first focused in the most developed countries and areas while the extensive one in the least economically developed ones. The levelling of differences caused that in the developing countries, new technologies were gradually introduced what shortened the distance between the areas of various development levels (Prebisch, 1948). According to the author, the location of the activity is not set for ever. As a result of changes in the factors which influence on it, relocation or delocalisation of many business activities take place.

Materials and methods

The main objective of the studies was to recognize changes taking place in sheep population on the country level in the European Union with special consideration of differentiation present before, during and after the economic crisis the climax of which took place in 2009.

The following detailed objectives have been assumed in the work:

- classification of countries into homogenous segments in which sheep farming determined by sheep population was explained with the use of selected groups of variables,
- recognition of the impact of short-term economic prospects on the segmentation of countries before, during and after the economic crisis.

One hypothesis was stated in the work:

sheep farming measured with sheep population was subject to gradual relocation from countries of the highest level of agricultural as well as social and economic development to the areas which were less developed within the scope.

Studies have been performed on group included all the countries which belonged to the EU as of 31.12.2013, these were 28 Member States. Data assumed for studies concerned years 2007-2013. Such a period was selected for studies due to two basic premises. In the years 2007-2013, sheep meat and sheep farming market was not subject to regulations which could involve the preference of specific countries or groups of countries. Even before special bonuses for manufacturers which decided to keep the mother sheep in the countries of the old EU have no longer been paid what allowed for creating fair competition conditions in the activity for all countries in the EU. In the studies, the impact of agricultural policy concerning directly sheep farming was limited then. Such a situation allowed to determine the factors which influenced on the sheep population in the European Union whilst eliminating the impact of agricultural policy. The other premise was the occurrence of the economic crisis in the studied period which influenced on various aspects of economic activity including agriculture and sheep farming. In the years 2007-2013, the periods of stabilization (2007-2008), economic crisis (2009-2010) and economy reconstruction (2011-2013)

took place what allowed to observe changes as a consequence of stronger stimuli. Moreover, the impact of the economic crisis caused that the dependencies have been more visible than in the conditions of economy and agriculture stabilisation.

The sources of the materials were:

- national and foreign literature,
- secondary data from EUROSTAT and FAMU/FAPA,
- statistical analyses published by EUROSTAT.

The following were used for the purposes of the analysis of the materials:

- segmentation method (Ward's method, k-Means, logistic regression model based on the so-called cumulative logits, Random Forests, Gradient Boosting).

In Ward's method, the results were presented in the form of a connection tree. The distance of Euclid was used as the base distance (Ward, 1963; de Amorim, 2015). In all the segmentation methods, for the purposes of evaluating the group uniformity the statistical Hosking-Wallis test was applied. In the model, the variability of indicators calculated from L-moments ratio with the 'expected' variability for homogenous groups are compared. L-moments are more resistant to disorders than normal moments and this is why they are often used while studying problems when the normality of distributions cannot be assumed (Hosking and Wallis, 1993, 1997; Castellarin et al., 2008).

Methods for materials presentation:

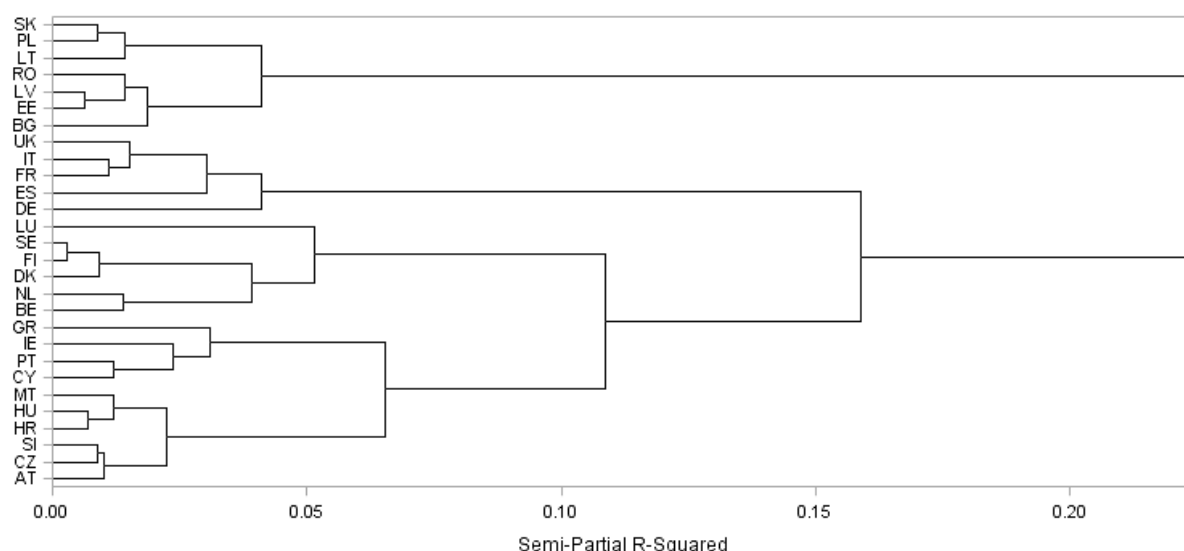
- descriptive, tabular, graphical.

Because of the fact there were no references in literature, the analysis was carried out with the use of a few methods, and the most appropriate one was selected based on both, econometric and expert's premises. The segmentation of the EU countries was realized taking into account six methods. The authors analysed one dependent variable - sheep population. The variable was measured on the ratio (continuous) scale, which made it difficult to compare the impact of other variables. This is why, for the purposes of the analysis, the variable was subject to discretizing growth transformation to 5 classes (20-percentage percentiles).

In order to select the best segmentation of countries, assumptions have been made which should be observed for sheep population. There are at least two countries of the biggest sheep population which come from the countries of the so-called EU-15, so from among Great Britain, France and Spain in one segment. The assumptions were verified for the periods with regard to which segmentation was performed. The presented classification allowed for separating the group of countries of the highest importance in sheep farming in the EU.

Research results and discussion

In the work, countries were divided into homogenous groups in which the level and changes of sheep farming were explained by means of agricultural variables and social and economic indicators.



Source: authors' elaboration

Fig. 1. Hierarchical tree for country classification by the Ward method into unified groups of variables in the field of agriculture and socio-economic affecting the sheep population in 2007-2013

Table 1

Segments of countries in classification by the Warda method into unified groups of variables in the field of agriculture and socio-economic affecting the sheep population in 2007-2013

Segments of countries	Countries
Group I (CL12)	Austria, Croatia, Czech Republic, Malta, Slovenia, Hungary
Group II (CL6)	France, Spain, Germany, Great Britain, Italy
Group III (CL9)	Cyprus, Greece, Ireland, Portugal
Group IV (CL5)	Belgium, Denmark, Finland, Netherlands, Luxembourg, Sweden
Group V (CL7)	Bulgaria, Estonia, Lithuania, Latvia, Poland, Romania, Slovakia

Source: authors' elaboration

For the entire 2007-2013 period, there were clear links between countries, and the distances were not large (Figure 1). Five segments were distinguished, which were presented on the map (Figure 2). One segment includes countries with the largest sheep populations, such as Spain, France, Great Britain, but also Germany and Italy. The individual groups were also well focused taking into account geographical distribution. Detailed breakdowns into groups of countries are presented in Table 1. Countries, that were included in particular segments, were analysed together by providing the average value per country for particular variables concerning agriculture and the socio-economic situation (Table 2). For all the study periods, segmentation of countries made by Ward's method was the best (Figure 2). In the period of recovering after the economic crisis, the biggest differences in the countries which keep sheep in the EU was present. The analysis of the segmentation of countries confirms strong relationships between sheep production and changes of agricultural parameters as well as social and economic features. Before and during the economic crisis the same countries with the biggest sheep population from Western Europe belonged to one group. In the years 2011-2013, Germany belonged to a separate group due to the sheep population forming factors which influence on sheep meat production what confirms the validity for separate segmentation for subsequent periods. Bigger differences in the groups were also present. In the years 2007-2008, sheep population increased in the countries which specialized in the

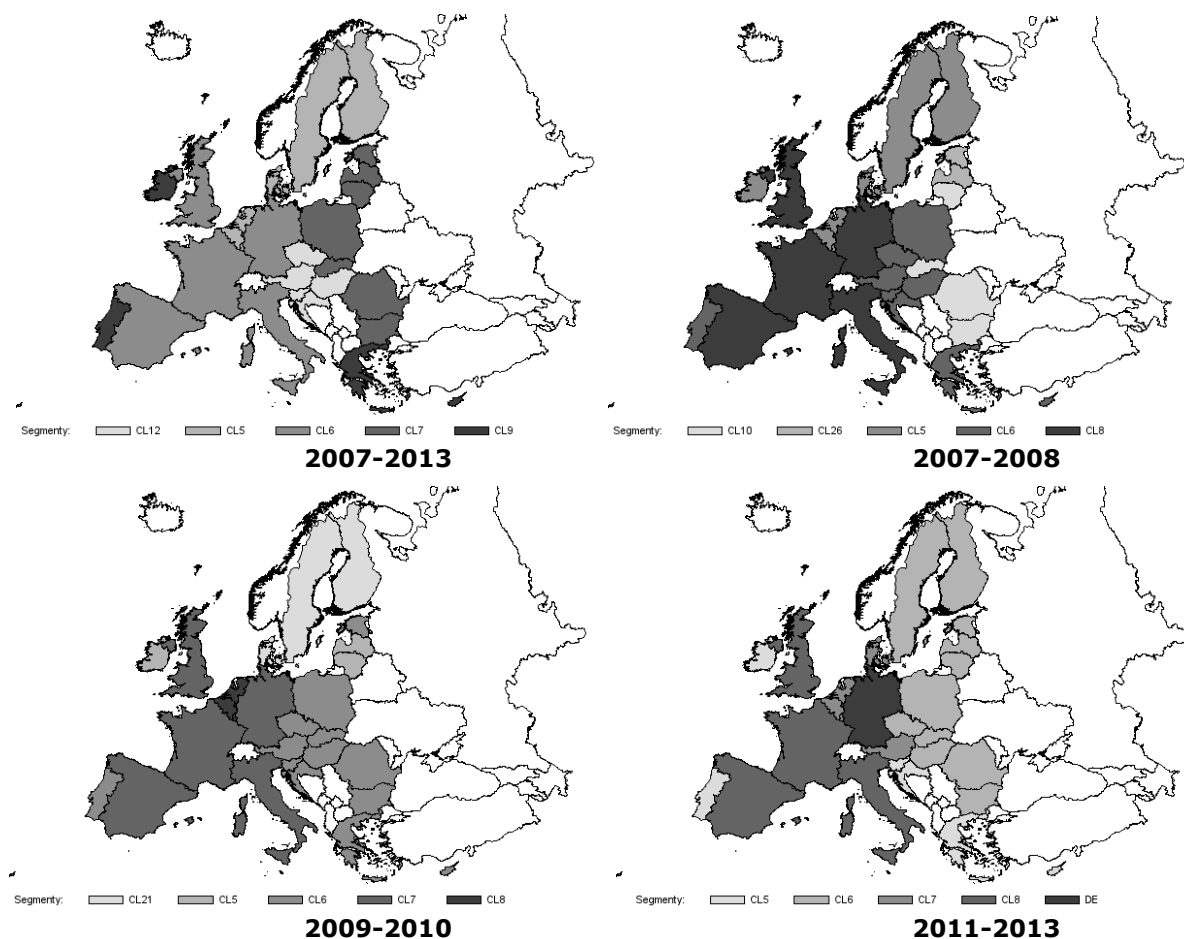
production, of high sheep population while it decreased in the countries with small sheep population; however, the changes in sheep farming were slight. During the crisis (2009-2010), the situation in sheep population depended on the agricultural as well as social and economic stability, the reductions took place in bad situations while the growths in good ones. Similar dependencies took place in the years 2011-2013. So, gradual relocation of sheep farming from developed countries but countries having problems, to developing ones with stable economic situation took place. The most important indicator for the development of national sheep farming was then the situation agricultural and social and economic stability.

Table 2

**Intra-class average of selected agricultural and socio-economic variables
 determining sheep population in EU countries in 2007-2013**

Parameters	Average results for groups of countries					Average EU
	I	II	III	IV	V	
Share of grassland in agricultural land (%)	30	37	42	26	28	31
Share of agricultural land in total area (%)	53	59	44	42	49	50
Number of cattle per 100 ha of UAA	47	49	51	102	19	53
Number of dairy cows per 100 ha of UAA	17	12	11	29	9	16
Number of sheep per 100 ha of UAA	31	55	130	15	16	42
Export of agricultural products (EUR million)	3341	34292	4170	17199	3570	12013
Import of agricultural products (EUR million)	3543	38065	4937	13716	3293	12024
Value of sheep meat production (EUR million)	14	502	130	14	41	124
Value of sheep meat production (EUR per capita)	2.00	8.87	18.87	121	3.07	5.73
Share of the followers of Judaism in society (%)	0.1	0.3	0.1	0.2	0.1	0.2
Share of the followers of Islam in society (%)	1.8	4.7	8.1	4.0	2.1	3.8
Professionally active in agriculture according to the share in the population	2.1	1.4	4.7	1.3	5.0	2.9
Milk yield of cows (litres)	5660	6654	5168	7586	4718	5944
Consumption of mineral fertilizers (kg per 1 ha of UAA)	127	96	85	130	67	101
Sheep meat consumption (kg per person)	0.8	2.7	6.3	1.2	0.9	2.0
Total meat consumption (kg per person)	83	88	84	82	64	79
Pork meat consumption (kg per person)	45	41	36	35	36	39
Poultry meat consumption (kg per person)	21	23	23	20	20	21
Beef meat consumption (kg per person)	13	19	17	23	6	15
Population (thousands of people)	5929	63158	6759	8044	11155	18027
Area of the country (km ²)	55492	389896	75024	149093	12658 ₅	155828
GDP value (EUR million)	107215	1851403	14687 ₇	308923	94888	464485
GDP per capita (EUR)	17488	28797	24429	45048	9388	24380
Budget deficit by share in GDP	-3.74	-4.68	-8.41	-0.90	-3.44	-3.89
Public debt by share in GDP	58.20	80.01	97.08	49.44	29.30	58.54
Gross value added of agriculture (EUR million)	1358	20235	2466	2814	2685	5531
Household consumption (EUR million)	60628	1051538	90573	142133	57676	258581
Household consumption (EUR per capita)	9243	16440	14111	19076	5524	12401

Source: authors' elaboration



Source: authors' elaboration

Fig. 1. Classification of countries by the Ward method into unified groups of variables in the field of agriculture and socio-economic affecting the sheep population in 2007-2013 (in periods 2007-2013, 2007-2008, 2009-2010, 2011-2013)

Conclusions

- 1) Based on the empirical studies presented in the work, some generalisations and conclusions have been formulated. Studies carried out allowed to show specific mechanisms of agricultural activity relocation and factors which influence on it. The total transfer of sheep farming will never take place as sheep farming on some areas does not have any competition, as e.g. in the very high parts of the mountains. It was also stated that in the centres with long-term tradition of breeding, the quantity of sheep was decreased as e.g. in Spain. In turn, sheep population was increased in the countries which maintained a small number of sheep and which had not been traditional places for their breeding as e.g. Lithuania, Latvia and the Czech Republic.
- 2) In the studies, the hypothesis according to which sheep farming measured with the sheep population was subject to gradual relocation from the countries of the highest agricultural as well as social and economic development to the areas less developed within the scope was confirmed. In terms of the countries, the biggest sheep population was still in the most developed countries in which big regional differentiation was present and sheep farming was taking place on the areas of lower level of development.

Bibliography

1. Boudeville, R. J. (1972). *Amenagement du territoire et polarisation (Land-Use Planning and Polarization)*. Paris.
2. Christaller, W. (1966 (1933)). *Central Places in Southern Germany*, translation by C. W. Baskin. Prentice-Hall, Inc., 1, Englewood Cliffs, II.J.
3. de Amorim, R.C. (2015). Feature Relevance in Ward's Hierarchical Clustering Using the Lp Norm, *Journal of Classification*, Volume 32, Issue 1, pp. 46–62.
4. Hosking, J. R. M. Wallis, J. R. (1993). Some Useful Statistics in Regional Frequency Analysis, *Water Resources Research* Volume 29, Issue 2, pp. 271–281.
5. Hosking, J. R. M. Wallis, J. R. (1997). *Regional Frequency Analysis – an Approach Based on L-moments*. Cambridge University Press, New York, p. 224.
6. Castellarin, A. Burn, D. H. Brath, A. (2008). Homogeneity Testing: How Homogeneous do Heterogeneous Cross-Correlated Regions Seem? *Journal of Hydrology*, Volume 360, Issue 1, pp. 67–76.
7. Isard, W. (1956). *Location and Space-Economy*. MIT Press, Cambridge, Massachusetts.
8. Launhardt, W. (1882). Die Bestimmung des Zweckmassigsten Standortes einer Gewerblichen Anlage (The Determination of the Most Appropriate Location of a Commercial Facility), *Zeitschrift des Vereines Deutscher Ingenieure*, 26(3), pp. 105–116.
9. Lösch, A. (1954 (1944)). *The Economics of Location*, translation by W. H. Waglom, Yale University Press, New Haven.
10. Marshall A., (1890). *Principles of Economics*, Macmillan and Co. Ltd., London.
11. Montossi, F., Font-i-Furnols, M., Del Campo, M., San Julian, R., Brito, G., Sanudo, C. (2013). Sustainable Sheep Production and Consumer Preference Trends: Compatibilities, Contradictions, and Unresolved Dilemmas. *Meat science*, 95(4), pp. 772–789.
12. Myrdal, G. Sitohang, P. (1957). *Economic Theory and Under-Developed Regions*, London.
13. Prebisch, R. (1948). *Estudio económico de América Latina (Economic Study of Latin America)*, Cepal, Santiago de Chile.
14. Rokicki, T., Gruszecki, T. M., Szymanowska, A. (2014). Economic Performance of Sheep Farms by Example of Lublin Province, *Annales of The Polish Association of Agricultural and Agribusiness Economists*, Vol. 16, No 3, pp. 254–258.
15. Rokicki, T., (2015). Economic Results of Sheep Farms in Poland, *Economic Science for Rural Development*, Economic Science for Rural Development. Proceedings of the International Scientific Conference, No 37, pp. 86–92.
16. Rokicki, T., (2016). Sustainable Development in Energy Sector in the European Union Countries, *Economic Science for Rural Development*. Proceedings of the International Scientific Conference, No 43, pp. 108–116.
17. Śmigła, M. (2013) Zroźnicowanie gospodarstw mlecznych FADN w regionach Unii Europejskiej w 2009 roku (Diversification of FADN Dairy Farms in Regions of the European Union in 2009). *Roczniki Ekonomiczne Kujawsko-Pomorskiej Szkoły Wyższej w Bydgoszczy*, (6), s. 375–386.
18. Von Thunen, J. H. (1826). *Der Isolierte Staat in Beziehung auf Landwirtschaft und Nationalökonomie (The Isolated State in Relation to Agriculture and National Economy)*. Hamburg, Perthes.
19. Ward, J. H. (1963). Hierarchical Grouping to Optimize an Objective Function, *Journal of the American Statistical Association*, 58, pp. 236–244.
20. Weber, A. (1914). *Industrielle Standortslehre: reine und kapitalistische Theorie des Standorts (Theory of the Location of Industries)*. Grundriss der Socialökonomik, VI B, Tübingen, pp. 54–82.
21. Weglarzy, K. Skrzyżala, I. (2012). Porównanie owczarstwa krajowego z owczarstwem w Słowacji (Comparison of National Sheep Production with Production in Slovakia). *Przegląd Hodowlany*, 3-4, s. 16–18

LABOUR SUPPLY IN LATVIA AND ITS IMPACTING FACTORS

Aija Sannikova¹, Dr.oec., Tamara Grizane², Dr.oec.

¹ University of Economics and Culture, ² Turība University

Abstract. Economic growth in a region affects the demand for labour, including qualified labour. The research analysed changes in the supply of qualified labour and jobs in Latvia. The research revealed that: 1) the supply of jobs by employers increased in the period 2010-2016; 2) the number of vacant jobs also increased in the same period. The research showed that there was a surplus of qualified labour in the national economy of Latvia at the existing output level and supply of jobs. A strong positive correlation was identified between the number of vacant jobs and net earnings ($r=0.80$). The number of vacant jobs in the period 2010-2016 changed according to a linear trend ($R^2=0.86$).

Key words: supply of labour, qualified labour, vacant jobs, net earnings, regions.

JEL code: O13, O15, R10, R21, R23

Introduction

The goal of regional policies is to promote balanced and sustainable development of the regions, taking into consideration all the territorial differences and limited opportunities (NDP, 2012). The supply of jobs in the regions by economic sectors as well as the market demand for occupations change dynamically. The economy of Latvia faces considerable problems in its labour market, which is confirmed by a study by the World Economic Forum (World Economic Forum, 2017).

Research aim: to analyse the aspects of labour supply in Latvia. **Research tasks:** 1) to examine theoretical findings on labour supply problems and the role of labour supply in the economy and society; 2) to analyse the aspects of labour supply in Latvia in the context of changes in the number of qualified labour and the earnings level.

Research methods:

The research employed qualitative methods for theoretical literature review, while numerical data were processed using statistical analysis and correlation analysis.

Research sources and materials: the Central Statistical Bureau, the Ministry of Economics, documents, statistics and research studies from Latvia and international organisations.

Research limitations. The present research defines the following terms as follows: 1) *qualified residents* – individuals (aged 15-74) who have higher education (International Standard Classification of Education (ISCED) levels 5-8) and secondary professional education (ISCED levels 3-4); 2) *knowledge* – an aggregate of: knowledge, skills and competences; 3) *qualified workforce* – employed and unemployed individuals (aged 15-74) with higher and secondary professional education.

Theoretical background

Role of labour supply in the national economy

In the post-crisis period (after 2010) in Latvia, the demand for qualified labour in the economic sectors increased owing to growth in economic activity and entrepreneurial development (Ministry of Economics, 2016). Consequently, the employment rate in Latvia was 9.6 percentage points higher in 2016 than in 2010.

Nevertheless, labour is limited in any economy: 1) absolutely – in this case the supply of labour in a region is limited due to the limited number of working-age population; 2) relatively – due to the factors that can affect and change the supply of labour and the demanded quality of labour.

Besides, the quantitative supply of labour increases if the knowledge of the working-age population earns adequate economic returns in the market of the factors of production (Sannikova A., 2014).

The lack of labour in the economy of Latvia becomes an increasingly urgent problem. The largest lack of labour in Latvia is observed in manufacturing, Information and Communication Industries (Ministry of Economics, 2016), yet professional associations believe that the problem with the availability of labour is specific to all industries, and 53.8 % enterprises face the lack of it (LETA, 2017).

Entrepreneurs see solutions to a mismatch between vacant jobs and unemployed labour mainly in education exports (91 %), and, to a smaller extent, in the integration of the unemployed into the labour market (6.7 %), (LETA, 2017). However, the vector of debates by the government and politicians in Latvia is oriented towards highly qualified labour (Saeima, 2002; Ministry of Economics, 2017; LETA, 2018; Cabinet of Ministers, 2017). The problem is that the factors causing a mismatch between labour supply and demand are little researched; besides, providing priorities for highly qualified foreign specialists in relation to remuneration could negatively affect the competitiveness environment for national labour resources.

Undeniably, the engagement of highly qualified labour in the economy contributes to the transfer and transformation of knowledge and fosters sustainable economic growth (Carayannis, E., Campbell D., 2012), as the knowledge is built up in multifaceted institutional processes, but at different levels (Warhust Cr., Thompson P., 2012).

Economic returns from labour could be a significant factor in household decisions on labour supply, as there are a few convincing research studies proving the positive effect of low earnings on employment among broad social groups. Besides, an increase in the earnings level in a region negatively affects employment opportunities for low qualification employees (Goldfarb, 1974). This fact makes the discussion urgent, as intensive economic globalisation increasingly contributes to the dominance of highly qualified labour over low qualified labour. For this reason, the only way how to reduce social tension caused by unemployment and escape the trap of low qualification in the regions is to contribute to the knowledge of those being at the bottom of this distribution (Brown Ph., Lauder H, Ashton, Z., 2012). An additional argument is the insufficient use of high knowledge at modern jobs (Allen J., Velden R., 2009) and paid labour management problems (Livingstone D., Guile D., et al., 2012).

Even though human capital theoreticians argue that investment in education results in changes in the work environment and lead to economic growth (McKenzie P., 2001; David P., Foray D., 2002; Young M., 2012), the role of knowledge in the concept of modern economy and political discussions increases (Gradstein M. et al., 2005; Dumciuvienė D., 2015); therefore, the knowledge and education possessed by individuals has to be persistently enhanced. Nevertheless, it has to be admitted that it does not avoid a situation where those with higher education get unemployed.

Growing demand for knowledge at jobs is the background of a knowledge economy, and the goal of governments is to ensure that labour possesses knowledge that is demanded in the labour market (European Commission, 2016). Unoccupied job vacancies indicate that the labour market functions ineffectively, and the reasons are that labour supply does not match labour market needs and employment terms offered are inadequate, e.g. the earnings level. Accordingly, the supply of jobs and the supply of labour in the regions have to be analysed to tackle the problems of unemployment and unoccupied vacancies.

Research results and discussion

The availability of qualified labour is affected by changes in the number of qualified residents; therefore, the present research focused on this aspect. As demographic changes in Latvia were negative in the period 2010-2016 (decrease by 11.0 %) (CSB, 2018b), the total number of qualified residents aged 15-74 decreased by 16.1 thousand. The decrease in the number of qualified working-age residents in Latvia was reported in all the regions, except for Pierīga region (Table 1). In Pierīga region, the number of qualified residents aged 15-74 increased by 9.9 thousand in 2016 compared with 2010. In contrast, in the same period in Kurzeme it decreased by 10.2 thousand, while the smallest decrease was reported in Latgale region (1.6 thousand). One can conclude that there were negative trends in the field of quality of human resources in the period 2010-2016.

In 2016, the highest proportion of qualified residents aged 15-74 in the total population was reported in Rīga region - 66.8 percent (316.8 thousand individuals), whereas the lowest proportions were in Kurzeme region (90.9 thousand; 49.8 %) and Zemgale region (86.9 thousand; 49.78 %) (Table 1).

However, the proportion of qualified residents in Latvia in 2016 compared with 2010 tended to increase (by 6.0 percentage points). The largest increases in the proportion were reported in Pierīga region (7.3 percentage points) and Latgale region (8.3), while the smallest increases were reported in Kurzeme region (2.8 percentage points), Zemgale region (3.8) and Vidzeme region (3.9).

Table 1

Percentage distribution of residents aged 15-74 by education level and by region in Latvia in 2010 and 2016

No	Region	Residents by education level, %*				Residents by education level, %*				QP	QP, %	2016/2010	
		A	B	C	D	A	B	C	D			N	P
		2010				2016							
1	R	46.3	30.1	31.8	20.4	45.3	45.3	29.5	31.6	316.8	66.8	-2.6	5.8
2	PR	18.3	17.1	18.8	16.5	20.5	20.5	17.6	18.4	162.5	60.2	9.9	7.3
3	K	9.9	12.9	12.8	17.4	8.7	8.7	12.5	15.0	90.9	49.8	-10.2	2.8
4	Z	8.9	11.7	12.7	15.9	8.6	8.6	11.6	13.4	86.9	49.7	-4.8	3.8
5	V	6.9	11.3	9.8	12.7	6.6	6.6	10.9	9.1	75.5	53.1	-6.7	3.9
6	L	9.9	17.0	14.1	17.1	10.2	10.2	17.8	12.7	120.9	59.2	-1.6	8.3
7	T	100	100	100	100	100	100	100	100	853.5	58.9	-16.1	6.0

Designations: R- Rīga region; PR - Pierīga region; K- Kurzeme region; Z- Zemgale region; V- Vidzeme region; L- Latgale region; A- higher education (ISCED levels 5-8); B- secondary professional education (ISCED levels 3-4); C- secondary education (ISCED level 3); D- primary education (ISCED levels 1-2); T- total; QP- number of qualified residents in a region; thou.; QP, %- number of qualified residents as a % of total residents in a region; %* - number of residents as a % of the total group of residents with corresponding education in a region; 2016/2010 - change in the percentage of qualified residents in 2016 compared with 2010; N- change in the number of qualified residents in 2016 compared with 2010; P- change in the percentage of qualified residents, 2016/2010, percentage points.

Source: authors' calculations based on CSB, 2018b

A balance between demand and supply in the labour market results in jobs being occupied, yet unused labour resources in the economy indicate the supply of unemployed labour. The calculations showed that in the period 2010-2016 in Latvia among residents aged 15-74 (Table 2): 1) a decrease in the number of the unemployed was very significant - 105.5 thousand (54 %); 2) the number of the unemployed decreased in all the regions of Latvia, yet the largest decrease was registered in Rīga region (by 53.6 thousand); 3) the proportion of the qualified unemployed in the total number of the unemployed was high in Latvia: 48.9 % in 2010 and 49.0 % in 2016.

The decrease in the number of the unemployed in Latvia was affected by at least two factors: 1) increase in employment; 2) demographic situation. In 2016 compared with 2010 in Latvia, the number of the employed rose by 5 % (42.6 thousand), whereas the number of the unemployed declined by 53.7 % (110.5 thousand) (CSB, 2018b), which indicates that the effect of the increase in employment on the decrease in unemployment was not crucial. A much more significant effect was caused by a decrease in the population of Latvia at working-age in all age groups (15-24, 25-39 and 40-64 years), although at various rates (Sannikova A., Grizane T., Dobeles A., 2017). One can assume that the decrease in the number of the unemployed was affected by other factors as well, e.g. emigration in search of employment to other EU Member States or beyond this region (CSB, 2018a).

A high proportion of qualified residents both in the total number of the unemployed and in the total number of economically inactive population indicate considerable labour resource reserves in the economy, the involvement of which in economic activity could increase output (Dubra E., 2008). In 2016, the greatest lost opportunities for qualified labour existed in Latgale region – 56.1 % qualified unemployed residents had no jobs (Table 2). In the other regions of Latvia, too, the lost opportunities for qualified labour could be rated as high: in the regions of Pierīga and Rīga, more than half of the unemployed were qualified individuals.

Table 2

**Distribution of unemployed and economically inactive residents aged 15-74
by region in Latvia in 2010 and 2016**

No	Region	2010				2016				2016/2010	
		Unemployed		Economically inactive		Unemployed		Economically inactive		Unemployed	
		N	%	N	%	N	%	N	%	N*	PR*
1	R	79.3	54.9	162.4	41.8	25.7	52.5	139.2	47.1	-53.6	-2.3
2	PR	33.0	46.4	101.7	34.2	12.0	52.5	82.0	42.9	-21.0	6.1
3	K	21.5	47.0	80.2	29.7	11.8	40.7	62.1	29.6	-9.7	-6.3
4	Z	28.6	36.0	72.7	27.1	14.1	36.9	57.2	33.2	-14.5	0.9
5	V	15.5	38.1	66.7	30.4	8.6	45.3	49.1	34.4	-6.9	7.3
6	L	27.9	55.9	95.2	32.0	23.1	56.3	72.1	40.9	-4.8	0.4
7	Total	205.8	48.9	578.9	34.0	95.3	49.0	461.7	40.0	-105.5	0.1

Designations: N- number; R- Rīga region; PR – Pierīga region; K- Kurzeme region; Z- Zemgale region; V- Vidzeme region; L- Latgale region; % - number of the qualified unemployed as a % of the total unemployed; 2016/2010 – change in 2016 compared with 2010; N*- change in the number of the unemployed in 2016 compared with 2010; PR*- change in the proportion of qualified residents in the total unemployed residents in 2016 compared with 2010, percentage points.

Source: authors' calculations based on CSB, 2018b

The present research seeks to identify whether the qualified unemployed (or part of them) could be potentially employed, given the existing supply of labour. For this reason, the research analyses data on the supply of labour in Latvia as a whole and on unoccupied vacancies.

In the period 2010-2016 in Latvia, the supply of jobs consisted of main jobs, additional jobs and unoccupied vacancies (Table 3). The total number of jobs supplied in Latvia in 2016 compared with 2010 rose by 15.1 %. Supply dominated over demand in the labour market, yet in 2016 compared with 2010 the number of main jobs decreased by 8.0 %. Besides, the proportion of main jobs in the total occupied jobs gradually decreased in the period 2010-2016. This could indicate the fact that employers started offering more part-time jobs, while employees probably wished to work for several employers.

A vacant job is defined as a job, for which no individual has been selected and no employment contract has been concluded, and the employer actively searches for an appropriate individual

outside the work team and is ready to fill the vacancy immediately or in the nearest future. An analysis of the data shows that the number of vacancies in Latvia in the period 2010-2016 gradually rose and in 2016 the number of job vacancies reached 14.4 thousand (compared with 2010, an increase by 7.7 thousand or 119.4 %).

Unoccupied vacancies indirectly indicate the following: 1) labour does not match employer requirements; 2) poor cooperation among education professionals, responsible officials of the Ministry of Education and Science, employers and other social partners in relation to labour skill development policies.

Table 3

Numbers of occupied and vacant jobs and the number of the qualified unemployed in Latvia in 2010 and 2016

No	Indicator	2010	2011	2012	2013	2014	2015	2016	Change, 2016/2010, %
1.	A	776.7	805.5	839.1	865.1	874.6	883.7	887.3	14.2
2.	B	646.2	672.8	696.9	715.6	712.9	631.8	594.2	-8.0
3.	C	83.2	83.5	83.1	82.7	81.5	71.5	67.0	-
4.	D	6.7	10.1	11.4	13.5	12.3	13.2	14.4	114.9
5.	E	783.4	815.6	850.5	878.6	886.9	896.9	901.7	15.1
6.	F	103.7	79.2	76.4	59.0	53.0	50.3	46.7	-55.0
7.	G	-97.0	-69.1	-65.0	-45.5	-40.7	-37.1	-32.3	-66.7
8.	H	15	8	7	4	4	4	3	-

Designations: A- average number of occupied jobs a year, thou.; B- average number of occupied main jobs a year, thou.; C- average number of occupied main jobs a year as a % of total; D- average number of vacant jobs a year, thou.; E – average number of available jobs a year, thou.; F- number of the qualified unemployed; G- difference between the number of vacant jobs and the number of the qualified unemployed; H- number of qualified employees per vacant job, ratio; change 2016/2010, %.

Source: authors' calculations based on CSB, 2018b

The lowest performance indicators for Latvia, according to the World Economic Forum report (World Economic Forum, 2017), with regard to labour market flexibility were as follows: 1) country capacity to retain talent (118th position, score 2.6); 2) country capacity to attract talent (118th position, score 2.4). The failure to engage qualified labour resources in the economy is one of the examples that relates to the mentioned findings.

A further analysis is based on an assumption that every vacancy may be occupied by only one qualified individual. The calculations revealed that in 2010 in Latvia, there were, on average, 15 qualified unemployed residents per vacancy, while in 2016 – only three (Table 3). A decrease in competition for jobs in the labour market reduces employer opportunities to find an appropriate employee.

The calculations showed that at the existing number of vacancies and supply of labour and assuming that the qualified unemployed wished and were able to fill vacancies, there would be a surplus of qualified labour in the period 2010-2016 anyway (Table 3). In 2016, the theoretical surplus of qualified labour would be equal to 32.3 thousand employees (besides, in reality a surplus of low qualified labour should be added to this number). Accordingly, to tackle problems in the labour market, discussions among the social partners have to be encouraged with the purpose of exploiting national labour resources more effectively in the national economy.

The factors that affect the situation – vacancies are not filled – relate to a mismatch among labour market requirements, employment terms and individual preferences of potential employers. Even though wage and salary formation flexibility in Latvia is rated high (World Economic Forum, 2017), it still significantly affects the supply of labour by households (CV-Online, 2017).

To identify a causal association between the number of vacancies (dependent variable) and the net earnings level (independent variable), the research performed a correlation analysis. The research used the available data for the period 2009-2016. The correlation analysis showed that at a probability of 95 %, there was a strong positive relationship ($r=0.80$; $r_{0.05; 9}=0.666 < r$). This allows concluding that the supply of labour by households in the market of the factors of production was affected by economic returns from labour. This conclusion is consistent with the findings of a survey (CV-Online, 2017), in which in 26 % instances net earnings were referred to as the key factor in the choice of a job.

To identify a trend in the number of vacancies in Latvia, the research did a regression analysis. The analysis revealed that in the period 2010-2016 in Latvia the number of vacancies had a linear trend ($R^2=0.86$), (1):

$$y = 1111x + 7256.6 \quad (1)$$

where:

x - period ($x=t+n$), R – determination coefficient.

Conclusions

- The supply of labour and the factors affecting it are broadly discussed in the scientific and public arenas, stressing the roles of qualified labour, education and job transformation in the modern work environment.
- In Latvia, the supply of labour by households in 2016 compared with 2010 increased (15.1 %), yet part of the jobs offered were not occupied – in 2016 there were 14.4 thousand vacancies. The number of vacancies in Latvia in the period 2008-2016 changed according to a linear trend ($R^2= 0.86$).
- In Latvia, the number of the unemployed in 2016 compared with 2010 decreased by 105.5 thousand, while the proportion of the qualified unemployed in the total number of the unemployed in 2016 was 0.1 percentage points lower than that in 2010.
- The calculations showed that at the existing supply of jobs and assuming that all the jobs are occupied, which is a theoretical assumption, there would be a surplus in the supply of qualified labour in the economy of Latvia in the period 2010-2016. For this reason, the expected involvement of foreign labour in the national economy of Latvia over the next years could increase the theoretical surplus of labour resources at the existing production and resource use level.
- An essential factor in the supply of labour is the earnings level, and it affects the number of vacancies. There was a positive strong correlation between the number of vacancies and the net earnings level ($r=0.80$; $r_{0.05; 9}=0.666 < r$).

Bibliography

1. Allen, J., Velden, R. (2009) *Report on the Large-Scale Graduate Survey: Competencies and Early Labour Market Careers of Higher Education Graduates*. Lifelong Learning Programme, European Commission. Retrieved: <http://www.hegesco.org/content/view/36/108/>. Access: 06.01.2018.
2. Brown, Ph., Lauder H, Ashton's, Z. (2011). *The Global Auction: The Broken Promises of Education, Jobs, and Incomes*. Oxford /New York, NY, Oxford University Press, 2011. *Socio-Economic Review*, Volume 10, Issue 4, 1 October 2012, pp. 779–793. Retrieved: <https://academic.oup.com/ser/article-abstract/10/4/779/1631999>; <http://www.thedivineconspiracy.org/Z5259T.pdf>. Access: 10.12.2017.
3. Cabinet of Ministers of the Republic of Latvia (2017). Cabinet Regulation (draft). List of Specialities (professions) in which a Significant Lack of Labour is Expected and in which Foreign Labour may be Employed in the Republic of Latvia. Retrieved: <http://tap.mk.gov.lv/lv/mk/tap/?pid=40425903>. Access: 17.12.2017.

4. Carayannis, E., Campbell, D. (2012). Mode 3 Knowledge Production in Quadruple Helix Innovation Systems. 21st-Century Democracy, Innovation, and Entrepreneurship for Development. Retrieved: <http://www.springer.com/gp/book/9781461420613>. Access: 16.12.2017.
5. Central Statistical Bureau (CSB) (2017). Latvia. Key Statistical Indicators 2017. Riga, p. 83. Retrieved: http://www.csb.gov.lv/sites/default/files/nr_03_latvija_galvenie_statistikas_raditaji_2017_17_00_lv.pdf. Access: 03.01.2018.
6. Central Statistical Bureau (CSB) (2018a). Emigrant's Profile in 2014-2016. Retrieved: http://www.csb.gov.lv/sites/default/files/emigranta_portrets_2014_2016_gadaa.pdf. Access: 28.01.2018.
7. Central Statistical Bureau (CSB) (2018b). Statistical database. Retrieved: <http://www.csb.gov.lv/dati/statistikas-datubazes-28270.html>. Access: 30.01.2018.
8. CV-Online Latvia (2017). Survey: Motivating Factors for Employers. Retrieved: <https://www.cv.lv/content/index.php?id=1456>. Access: 01.02.2018.
9. David P. A., Foray D. (2002). An Introduction to the Economy of the Knowledge Society. *International Social Science Journal*, Vol. 54, No. 171, pp. 9-23.
10. Dubra E. (2009). Social and Methodological Aspects of Latvian Labour Market Research. University of Latvia proceedings, Vol. 737. Economics, VII, pp. 100-111.
11. Dumciuviene D. (2015). The Impact of Education Policy to Country Economic Development. *Procedia - Social and Behavioural Sciences*. Volume 191, pp. 2427-2436. Retrieved: <http://www.sciencedirect.com/science/article/pii/S187704281502562>. Access: 26.08.2015.
12. European Commission (2016). Europe 2020 Strategy. Retrieved: https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/framework/europe-2020-strategy_en. Access: 10.12.2017.
13. Goldfarb, R. (1974). The Policy Content of Quantitative Minimum Wage Research. Proceedings of the Industrial Relations Research Association. Vol. 27, pp. 261-68. Retrieved: https://www.researchgate.net/publication/301346784_The_Policy_Content_of_Quantitative_Minimum_Wage_Research. Access: 19.01.2018.
14. Gradstein M., Justman M., Meier V. (2005). *The Political Economy of Education. Implications for Growth and Inequality*. The MIT Press, Massachusetts Institute of Technology. Retrieved: http://www.amazon.com/The-Political-Economy-Education-Implications/dp/0262072564#reader_0262072564. Access: 26.11.2017.
15. LETA (2017). Currently 60 % Latvian Employers Face a Labour Shortage. News Agency LETA, 11 December 2017. Retrieved: <http://nra.lv/latvija/231270-sobrid-ar-darbaspeka-trukumu-saskaras-jau-60-latvijas-uznemeju.htm>. Access: 21.01.2018.
16. LETA (2018). A New Regulation is Expected to Attract from 200 to 300 Foreign Employees a Year. Retrieved: <http://www.delfi.lv/news/national/politics/ar-jaunu-regulejumu-plano-piesaistit-no-200-lidz-300-viesstradniekiem-gada.d?id=49713727>. Access: 05.02.2018.
17. Livingstone D., Guile D., et al., (2012). *The Knowledge Economy and Lifelong Learning: A Critical Reader*. Rotterdam: Sense Publishers. p. 334.
18. McKenzie P. (2001). How to Make Lifelong Learning a Reality: Implications for the Planning of Educational Provision in Australia. International Handbook on Lifelong Learning. Ed. D. Aspin, J. Chapman, M. Hatton, Y. Sawano. Dordrecht; Boston: Kluwer Academic Publishers.
19. Ministry of Economics the Republic of Latvia (2016). Report on Economic Development in Latvia. Riga, June 2016. Retrieved: https://www.em.gov.lv/files/tautsaimniecibas_attistiba/2016_jun.pdf. Access: 17.12.2017.
20. Ministry of Economics the Republic of Latvia (2017). Relaxed Terms for the Attraction of Foreign Labour – a Solution to the Lack of Labour in some Professions. Retrieved: <https://www.em.gov.lv/lv/jaunumi/14946-atviegloti-nosacijumi-augsti-kvalificetu-specialistu-piesaistei-no-arvalstim-risinajums-darbaspeka-trukumam-atseviskas-profesijas>. <https://www.em.gov.lv/lv/jaunumi/14946>. Access: 16.01.2018.
21. National Development Plan of Latvia for 2014-2020 (NDP) (2012). Retrieved: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=13524. Access: 16.11.2017.
22. Saeima of the Republic of Latvia (2002). Immigration Law. Adopted 31.10.2002. Retrieved: <https://likumi.lv/doc.php?id=68522>. Access: 23.01.2018.
23. Sannikova A. (2014). Economic Aspects of Lifelong Learning in Latvian Regions. In "Society, Integration, Education. Proceedings of the International Scientific Conference", May 23th – 24th, 2014, Value II, pp. 197-206. Rezekne Higher Education Institutions. Rezekne, Latvia, pp. 197-206 ISSN-1691-5887.
24. Sannikova A., Grizane T., Dobeļe A. (2017). Demand for and Supply of Higher Education in Latvia // *Economic Science for Rural Development 2017, Latvia, Jelgava, 27.04.2017-28.04.2017. Jelgava: LLU, pp. 204-212. ISBN 978-9984-48-261-3. ISSN 1691-3078. ISSN 2255-9930 on line.*
25. Warhurst Cr., Thompson P. (2012). Mapping Knowledge in Work: Proxies or Practicels?. In "The Knowledge Economy and Lifelong Learning. A Critical Reader". Livingstone University of Toronto, Canada, University of London, UKD.W. P. O. Box 21858, 3001 AW Rotterdam, Netherlands, pp. 43-56.
26. World Economic Forum (2017). The Global Competitiveness Report 2017-2018. Retrieved: http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf. Access: 02.02.2018.
27. Young M. (2012). Education, Globalization and the „Voice of Knowledge”. *The Knowledge Economy and Lifelong Learning: A Critical Reader*. D.W. Livingstone, D. Guile (Eds.) Rotterdam: Sense Publishers, pp. 335-348.

DEVELOPMENT OF TRANSPORT INFRASTRUCTURE IN LATVIA, LITHUANIA AND POLAND WITH SUPPORT OF STRUCTURAL FUNDS

Maciej Stawicki¹, PhD

¹Warsaw University of Life Sciences (WULS-SGGW)

Abstract. The main aim of the paper is to compare the investments in transport infrastructure with support of structural funds in Latvia, Lithuania and Poland. The specific objectives were: classification of projects connected with transport infrastructure development, calculation of the share of infrastructure projects in all EU funding and identification of types of beneficiaries. Desk research, review of literature and databases, statistical and descriptive methods were used. The material used was databases of projects implemented in the period 2007-2016 co-financed by EU structural funds in the programming period 2007-2013. Poland was the largest EU-funds for infrastructure absorber (30 billion EUR), and in Latvia and Lithuania the total values of all transport infrastructure supporting projects were very close to each other (1.7 billion EUR). The share of transport infrastructure funding among all EU co-financed projects was similar in all countries, although in Poland it was higher (31.2 %) than in Lithuania (21.7 %) and Latvia (24.8 %). Developing the Trans-European Transport Network (TEN-T) and rail infrastructure projects (i.a. Rail Baltica connecting Warsaw with Kaunas) were the two types of projects with highest share in all countries. In Lithuania and Poland, there was quite high funding for national, regional and local roads and highways reconstruction, while in Latvia investments in sea ports took the third place in total share of funding. Nearly all airports in the three countries benefited from the EU funds. The structure of beneficiaries was very diversified in Poland, while in Lithuania all infrastructure investments were highly institutionally concentrated.

Key words: transport infrastructure, EU structural funds, Latvia, Lithuania, Poland.

JEL code: O18, R42

Introduction

Structural funds are an instrument of European Union's regional and cohesion policy used to reduce regional differences (Bachtler J., Turok I., 2013). As part of equalizing the level of development and increasing cohesion of European countries, an important element is development of infrastructure, which has positive impact on private investment and employment (Pereira A. M., Andraz J. M., 2005) and is necessary impulse for economic development. Transport infrastructure is defined as all routes and fixed installations of the three modes of transport being routes and installations necessary for the circulation and safety of traffic (EC, 2006).

As there is lack of international comparative studies, the main aim of the paper is to identify and compare the amount of financing the development of transport infrastructure with support of structural funds (later in the text also called EU funds) in 3 selected countries: Latvia, Lithuania and Poland. The specific objectives were: classification of projects connected with transport infrastructure development, calculation of the share of infrastructure projects in all EU funding and present examples of implemented projects. Types of beneficiaries were identified – only in Lithuania and Poland because of data accessibility. Special attention was paid to the TEN-T network development and binding all three analysed countries.

Desk research (review of literature and databases, ordering, classification of projects), statistical methods (relative and absolute indicators), field observations and descriptive methods were used, the data were presented using tables and graphs elaborated with Excel software.

The material used was databases of projects implemented in the period 2007-2016 co-financed by EU structural funds in the programming period 2007-2013 downloaded from the national websites concerning EU funding in analysed countries (funduszeuropejskie.2007-2013.gov.pl, 2018; esparama.lt, esfondi.lv, 2017). The data were published by Ministry of Finance of the

Republic of Latvia (MF), Ministry of Finance of the Republic of Lithuania (MF), Ministry of Investment and Economic Development of the Republic Poland (MIED) – later in the text the abbreviations will be used. During the analysis of Polish database, the author quite often came across many errors in beneficiaries' classification, sometimes the same entity was classified in two different ways. One can conclude that the Polish EU funds monitoring system allows incorrect classification and is not unequivocal for its users. Despite different structure of databases and differences in project descriptions, the project types were analysed and classified into the following groups: rail infrastructure, national roads, regional and local roads, the TEN-T routes, sea transport infrastructure, inland water transport infrastructure, airports, city transport, multimodal and other transport. In this way it was possible to compare the amount of funding for transport infrastructure in Latvia, Lithuania and Poland.

Research results and discussion

1. EU support for transport infrastructure

Poland was the largest (about 96 billion EUR) EU funds absorber in the period 2007-2013, so, as a result, also the amount and value of projects investing in infrastructure was the highest, 17 times higher than in the two other analysed countries. Interestingly, the situation in Latvia and Lithuania was very similar – the total values of all transport infrastructure supporting projects were very close to each other (1.7 billion EUR) (Tab. 1).

Comparing relative indicators, it is clear that in relation to the country area in Poland the total value of transport projects was highest, but only 4 times higher than in Lithuania and Latvia. In relation to the population, Latvia invested most, Poland took second place and Lithuania the third with 587 thousand euro per capita.

Table 1

**The main indicators concerning EU support for transport infrastructure
(perspective 2007-2013)**

	sum of EU funding [m. EUR]	transport infrastructure funding [m. EUR]	share of transport funding [%]	transport infrastructure funding per sq. km [thous. EUR]	transport infrastructure funding per inhabitant [thous. EUR]
Latvia	6828.8	1696.4	24.8	26.27	865.53
Lithuania	7791.6	1687.1	21.7	25.84	587.45
Poland	96153.5	30040.5	31.2	96.07	792.62

Source: author's calculations based on data of MF of Latvia and Lithuania and MIED of Poland

Basing on author's calculations, the share of transport infrastructure funding among all EU co-financed projects was similar in all countries, although in Poland it was the highest (31.2 %) and in Lithuania the lowest (21.7 %). This outcome is close to the data published in Breakdown of EU Structural Funds by Theme and Member State for the programming period 2007-2013 (EC, 2018), where 37 % share of transport projects for Poland (the highest share among all EU countries), 23 % for Lithuania and 25 % for Latvia were indicated.

2. The types and structure of implemented projects

The number and value of different types of projects supporting transport infrastructure were presented in Tab. 2. In two of the three analysed countries, the amount of projects developing the Trans-European Transport Network (TEN-T) was the highest. The aim of developing the TEN-T network is to ensure territorial cohesion of the EU and to improve the free movement of people and

goods (Adamiec, 2012). An efficiently functioning transport system within the Union is to contribute to the improvement of the operation of the internal market, stimulate the region's economic growth and increase the competitiveness of individual Member States and the entire EU on a global scale. The investments in TEN-T network in all countries included mainly reconstruction of national roads and reconstruction of railways. Also intermodal container and railway terminals were developed, mainly in Poland, where the total value of TEN-T projects amounted about 10 billion EUR due to construction of new motorways (A1, A4) and new express roads (i.a. parts of S3, S5, S7, S8, S69).

Table 2

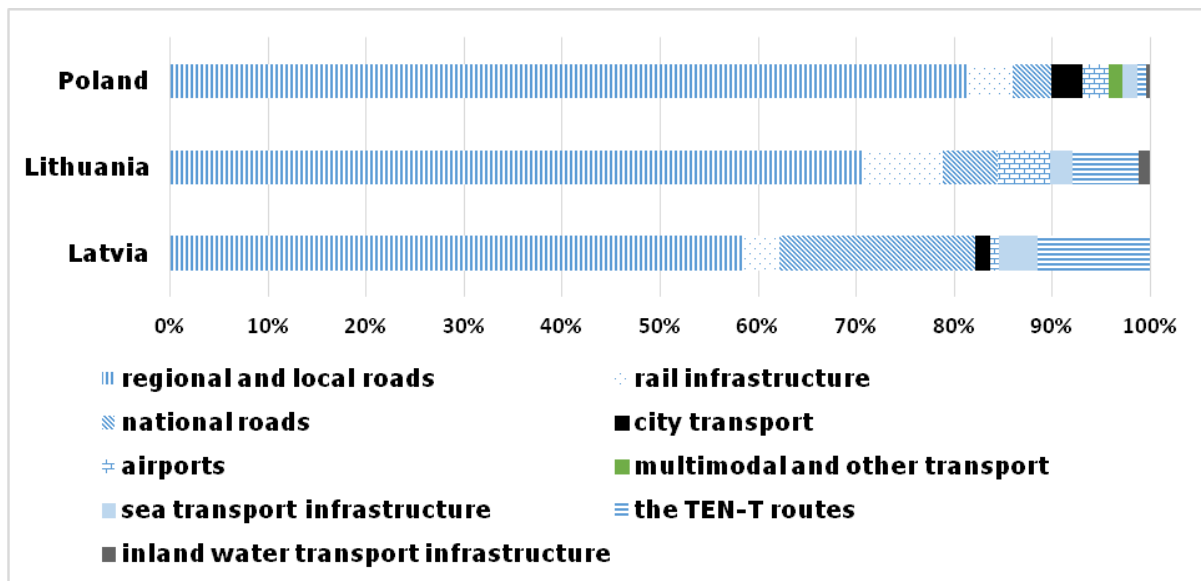
Number and value of different types of projects supporting transport infrastructure (co-financed by EU funds in perspective 2007-2013)

Types of projects	Latvia		Lithuania		Poland	
	number of projects	value of projects [m. EUR]	number of projects	value of projects [m. EUR]	number of projects	value of projects [m. EUR]
the TEN-T routes	29	411.8	23	479.6	28	10061.0
rail infrastructure	9	364.3	28	528.2	146	6095.4
sea transport infrastructure	10	332.2	8	56.3	45	776.1
regional and local roads	147	199.4	240	277.8	2544	5744.9
national roads and highways	50	191.3	19	280.7	123	5012.3
airports	2	121.7	18	57.9	83	967.0
city transport	4	75.9	0	0.0	99	834.4
inland water transport infrastructure		0.0	4	6.6	16	95.5
multimodal and other transport	0	0.0	0	0.0	46	454.0

Source: author's calculations based on data of MF of Latvia and Lithuania and MIED of Poland

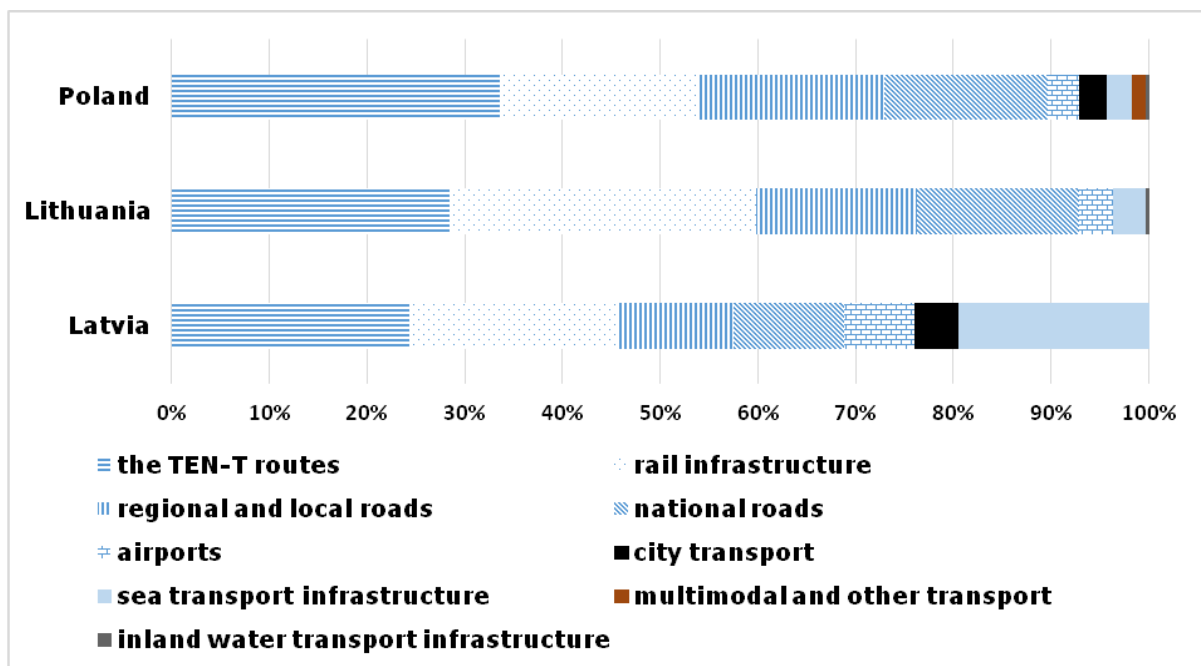
The second place in total value in Poland and Latvia was taken by rail infrastructure projects. In Poland, one of them was modernization of the E 75 Rail Baltica line running from Warsaw through Bialystok to the border with Lithuania (section Warsaw Rembertow – Sadowne). In Lithuania, in the Rail Baltica corridor contracts for reconstruction of the existing railway line Marijampole-Kazlu Ruda-Kaunas were conducted. This project allowed to reconstruct the existing 1520 mm wide line and build new tracks which comply with the European track standard (1435 mm wide), which allowed to run the first direct train from Bialystok to Kaunas in June 2016. In 2017, further works financed by the Connecting Europe Facility – CEF on next section between Sadowne and Bialystok started. As we can see, the mentioned railway projects were complementary and they will finally allow railway communication between Poland and Lithuania through Bialystok, Elk, Olecko and Suwalki (Graff, M., 2017). Also in Lithuania, Latvia and Estonia conception works on Rail Baltica go on, the whole route from Kaunas to Tallinn is expected to be completed by the year 2025 (AECOM, 2011).

In Lithuania and Poland, national, regional and local roads and highways reconstruction projects took the third place; taking into account the value of projects and considering the number of projects this category was the most numerous in each country. In Latvia, important share of funds was spent on sea transport infrastructure under the measure development of large port infrastructure under the "motorways of the sea".



Source: author's calculations based on data of MF of Latvia and Lithuania and MIED of Poland

Fig. 1. The quantitative structure of implemented transport infrastructure projects co-financed by EU funds in perspective 2007-2013



Source: author's calculations based on data of MF of Latvia and Lithuania and MIED of Poland

Fig. 2. The structure of value of implemented transport infrastructure projects co-financed by EU funds in perspective 2007-2013

Important investments in ports in Ventspils and Liepaja and in Freeport of Riga allowed to comply water quays with the best international port practices, helped development of terminals and necessary road and rail access to the port areas (ROP, 2015). Also ports in Klaipeda, Gdansk, Gdynia, Szczecin and Elblag were beneficiaries of EU funds investing in adapting infrastructure to serve increasingly larger and more modern units (Grzybowski, M., 2014). Expansion and modernization of airport infrastructure was carried out in nearly all airports in the three countries: Liepaja and Riga in Latvia, Vilnius, Kaunas and Palanga in Lithuania and in every Polish airport, except Radom.

Other types of projects consisted in investments in inland water transport infrastructure and multimodal and other transport infrastructure, also city transport. More about support for the urban public transport from the EU funds can be found in the paper by Wojewodzka-Wiewiorska, A. (2014).

The differences in structure of projects were presented in Fig. 1 and Fig. 2. The highest number of projects in all countries concerned regional and local roads (58-81 %). The structure of projects' value was far more balanced, as investments in TEN-T routes, railway infrastructure, national, regional roads had about 13-33 % share. This leads to the conclusion that the most expensive investments with most extensive range were made on the TEN-T network and railroads.

3. Beneficiaries of infrastructure projects

The structure of beneficiaries was analysed only for Lithuania and Poland because of data availability.

Table 3

Beneficiaries and values of EU co-financed projects supporting transport infrastructure in Lithuania (financial perspective 2007-2013)

Beneficiary (number of beneficiaries)	types of projects	total value of projects [m. EUR]
Lithuanian Road Administration	the TEN-T routes, national roads and highways	760.3
Lithuanian Railways	rail infrastructure	528.2
Municipalities (60)	regional and local roads	277.8
Lithuanian Airports	airports	57.9
Klaipeda Maritime Office	sea transport infrastructure	56.3
Directorate of inland waterways	inland water transport infrastructure	6.6

Source: author's calculations based on data of Ministry of Finance of the Republic of Lithuania

In Lithuania, all infrastructure investments were highly institutionally concentrated – besides 60 municipalities (rajono or miesto savivaldybes administracija) only 5 state-owned entities or companies ran infrastructure projects: Lithuanian Road Administration, Lithuanian Railways, Lithuanian Airports, Klaipeda Maritime Office and Directorate of inland waterways.

In Poland, the situation was very different. As one can see in Tab. 4, in Poland the responsibility for transport infrastructure is spread over many entities of various types. Due to the larger surface area of the country 1260 local administrations of municipalities, counties and regions were involved in infrastructure projects. They built and reconstructed not only local and regional but also national roads, which is a result of road management system in Poland – national roads within cities with powiat rights are managed by the city administration. Interestingly, also municipalities were involved in railway infrastructure modernisation projects. Regional administration purchased and modernized many passenger trains for regional railways. State organizational units and state legal entities as General Directorate for National Roads and Motorways (GDDKiA), Police, State Fire Service were involved in the construction of TEN-T routes, national roads and highways, but also in projects to improve safety and rescue services. Maritime Offices, Regional Water Management Authorities (RZGW), SAR implemented sea and inland transport infrastructure projects. Among enterprises Polish State Railways (PKP-PLK, PKP Intercity) and 6 other railway companies developed their rolling stock, among others by purchase and modernization of electric traction units. Polish Air Navigation Services Agency (PAZP) and airport companies were involved in

development of the infrastructure of the state air traffic management authority and improvement of security and protection of airports and development of their infrastructure.

Table 4

Total values and types of EU co-financed projects supporting transport infrastructure in Poland by beneficiaries [million EUR]

Types of beneficiaries	state organizational units and legal entities	local and regional governments	enterprises	government administration bodies	other entities
Examples of beneficiaries	General Directorate for National Roads and Motorways, Maritime Offices, Regional Water Management Authorities, SAR, Police, State Fire Service	1260 administrations of municipalities, counties and regions	Railway companies, airport companies, municipal transport companies	Divisions of General Directorate for National Roads and Motorways, ministries	Institutes
Types of projects					
the TEN-T routes	9925.0	0.0	152.9	136.0	0.0
rail infrastructure	0.0	452.7	5642.7	0.0	0.0
sea transport infrastructure	198.4	376.2	191.5	10.1	0.0
regional and local roads	2.9	5724.3	0.0	7.1	10.6
national roads and highways	2790.4	1634.8	0.0	557.3	29.6
airports	82.1	2.3	879.7	2.9	0.0
city, multimodal and other transport	0.8	898.0	236.6	0.0	0.0
inland water transport infrastructure	91.9	3.5	0.0	0.0	0.0
Total	13091.4	9092.0	7103.4	713.5	40.2

Source: author's calculations based on data of Ministry of Investment and Economic Development of Poland

Conclusions, proposals, recommendations

The paper compared the development of transport infrastructure with support of structural funds in Latvia, Lithuania and Poland. Projects connected with transport infrastructure development were classified and the share of infrastructure projects in all EU funding was calculated. The main conclusions are stated below.

- 1) Poland had the highest value of infrastructure projects from the analysed countries (30 billion EUR) and the highest share of transport infrastructure in total structural funding among all EU countries.
- 2) In Latvia and Lithuania, the total values of all transport infrastructure supporting projects were very close to each other (1.7 billion EUR).
- 3) In relation to the population, Latvia invested most (865 thous. EUR per inhabitant), Poland took second place and Lithuania the third with 587 thousand euro per capita.
- 4) In all three countries, most funds were spent on Trans-European Transport Network (TEN-T), reconstruction of national, regional and local roads and reconstruction of railways.
- 5) In Latvia, also sea port infrastructure in Riga and Liepaja was developed with high aid of EU funds.
- 6) The most expensive investments with most extensive range were made on the TEN-T network and railroads.
- 7) In Lithuania, all infrastructure investments were highly institutionally concentrated, while in Poland due to the larger surface area of the country and different organization the number of beneficiaries was much higher.
- 8) In Poland, the responsibility for transport infrastructure is spread over many entities of various types, as a result coordination between their actions and investments is needed.
- 9) Some projects were complementary and in future they will allow to connect the Baltic States with Western Europe (i.a. Rail Baltica project).
- 10) Polish EU funds monitoring system for the period 2007-2013 contains some errors in classification of entities, thus before analysing the data, they must be checked and ordered.

As one can see, the support of EU structural funds for transport infrastructure development in Latvia, Lithuania and Poland was very important and allowed to increase the spatial cohesion of the analysed region. Further studies could be focused on the analysis of the effects of the infrastructure for improvement of safety, shorten of travel time and increasing the level of economic development.

Bibliography

1. Adamiec, J. (2012). *Transeuropejskie sieci transportowe (TEN-T)*. Studia BAS Nr 4(32). pp. 63–78.
2. Bachtler, J., Turok I. (eds.). (2013), *The Coherence Of EU Regional Policy: Contrasting Perspectives On The Structural Funds*. Routledge. London & New York, p. 441.
3. *Breakdown Of The Available Funds By Theme For 2007-2013*, Retrieved: <https://cohesiondata.ec.europa.eu/Country-Level/Breakdown-Of-The-Available-Funds-By-Theme-For-2007/w597-agi6/data>. Access: 10.01.2018.
4. Commission Regulation (EC) No 851/2006 of 9 June 2006 Specifying The Items To Be Included Under The Various Headings In The Forms Of Accounts Shown In Annex I To Council Regulation (EEC). Retrieved: <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32006R0851&from=PL>. Access: 05.02.2018.
5. Graff, M. (2017). *Railway Communication Between Poland And Lithuania (Komunikacja kolejowa pomiędzy Polska i Litwa)*. Technika Transportu Szynowego 6/2017, pp. 45-52.
6. Grzybowski, M., (2014). *Investments In The Eastern Baltic Sea Ports. Case Studies (Inwestycje w portach morskich wschodniego Bałtyku. Studia przypadków)*. Logistyka 6/2014. pp. 689-698.

7. *The Russian-Island Infrastructure Development Project Has Been Put Into Operation (Krievu salas infrastruktūras attīstības projekts ir nodots ekspluatācijā)*. Retrieved: <http://rop.lv/lv/jaunumi/5396-krievu-salas-infrastrukturas-attistibas-projekts-ir-nodots-ekspluatacija.html>. Access: 18.01.2018.
8. Ministry of Finance of the Republic of Lithuania, Database Of EU-Cofinanced Projects In Lithuania. Retrieved: <http://www.esparama.lt> Access: 17.12.2017.
9. Ministry of Investment and Economic Development of the Republic Poland, Database Of EU-Cofinanced Projects In Poland. Retrieved: <http://funduszeuropejskie.2007-2013.gov.pl> Access: 10.01.2018.
10. Ministry of Finance of the Republic of Latvia, Database Of EU-Cofinanced Projects In Latvia. Retrieved: <http://www.esfondi.lv> Access: 18.12.2017.
11. Pereira, A. M., Andraz, J. M., (2005). *Public Investment In Transportation Infrastructures And Economic Performance In Portugal*. Review of Development Economics, Wiley Online Library retrieved: [http://sapientia.ualg.pt/bitstream/10400.1/4709/3/Public Investment in Transportation Infrastructures and Economic Performance in Portugal.pdf](http://sapientia.ualg.pt/bitstream/10400.1/4709/3/Public%20Investment%20in%20Transportation%20Infrastructures%20and%20Economic%20Performance%20in%20Portugal.pdf) Access: 05.02.2018
12. *Rail Baltica Final Report Executive Summary*. (2011). AECOM Transportation. p. 29.
13. Regulation (EU) No 1315/2013 Of The European Parliament And Of The Council Of 11 December 2013 On Union Guidelines For The Development Of The Trans-European Transport Network And Repealing Decision No 661/2010/EU Text With EEA Relevance. Retrieved: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32013R1315>. Access: 18.01.2018.
14. Wojewodzka-Wiewiorska, A. (2014). *Support For Public Urban Transport From EU Funds 2007-2013 In Poland (Wsparcie publicznego transportu miejskiego z funduszy unijnych 2007-2013 w Polsce)*. Logistyka 4/2014. pp. 3784-3792.

THE IMPORTANCE OF PROTECTED AREAS IN THE COUNTRIES OF THE EUROPEAN UNION

Joanna Stefanczyk¹, MSc; Le Hoang Long², MSc

¹Department of Economics and Organisation of Enterprises, Warsaw University of Life Sciences (SGGW),

²International Economics Faculty, Banking University of Ho Chi Minh City

Abstract. The study describes the quantities of European Union Natura 2000 protected areas. The aim of research was to analyse land areas of EU Member States covered by Natura 2000. The size of Site of Community Importance (SCI) and Special Protection Area (SPA) areas were compared among the countries of the European Union. Furthermore, the environmental protection transfers by environmental protection activity and institutional sector for years 2010-2015 were presented and their significant irregularity was featured. The analysis uses secondary data available on the European institutions websites. The result of the analysis was the observation of significant differences in the size of protected areas in different countries, where in some cases even 1/3 of the country's territory is protected areas.

Key words: protected areas, Natura 2000, ecological farming, European Union.

JEL code: Q50, Q56, Q57.

Introduction

Europe is a continent rich in valuable natural areas, which imposes on people the duty of their care, protection and keep for future generations. As much as 1/6 of the land territory of the European Union is covered by the European Ecological Network Natura 2000 (Perepeczko B., 2012). Previous traditional forms of nature protection based on prohibitions and restrictions were not a sufficient solution for the habitats used for agriculture (Brodzinska K., 2013). Golebiewska and Pajewski emphasize that environmental issues once moved aside now in the aspect of agricultural activity are becoming more and more important (2015). Preventing the progressive degradation of the environment and restoring its damaged components require its users to use various ways of protection (Wielewska I., 2017). Therefore, if economy and the environment are to grow in harmony, two principles must be respected: 1) it is necessary to use renewable resources in a manner that warrants that the level of consumption of these is not higher than the level of production, 2) pollutants must not be generated in quantities that exceed the assimilative capacity of the environment (Golebiewska B., 2015; Wos A., Zegar J., 2002). The implemented network of Natura 2000 areas consists of special areas of habitat protection, special bird protection areas and areas of importance for the EU (Mickiewicz B., Gotkiewicz W., 2010). The development of the idea of nature conservation has progressed in individual countries at a varied pace. The process of European integration has facilitated the undertaking and coordination of activities for the coherent protection of natural heritage on the scale of almost the entire continent. The main issue in the aspect of the efforts of various European countries to protect nature has become the creation of a common legal basis. One of the first acts of this kind was the Ramsar Convention on the Protection of Wetlands (1971), the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979) and the Berne Convention on the Protection of Species of Wild European Fauna and Fauna and Natural Habitats (1982). These activities turned out to be insufficient, a symptom of which was the decline in biodiversity, still observed on a European and global scale. As a result, as part of the United Nations Conference on Environment and Development held in 1992 in Rio de Janeiro, further documents were adopted defining the fundamental principles in socio-economic policy requiring environmental protection, including the Convention on the Preservation of Biological Diversity (called the Rio Convention). The main goal of its implementation is to protect biodiversity on a global scale and sustainable use of environmental resources, as well as a fair distribution of

¹Corresponding author. E-mail address: joanna_stefanczyk@sggw.pl

²Corresponding author. E-mail address: longlh@buh.edu.vn

benefits derived from genetic resources (General Directorate for Environmental Protection, 2014). In order to achieve such goals within the European communities, the so-called Bird Directive (Council Directive 79/409 / EEC of 2 April 1979 on the protection of wild birds, replaced by a new Directive 2009/147 / EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds) . As an act of law closely related and developing a vision of the actions outlined earlier in relation to birds, in 1992 the so-called the Habitats Directive (Council Directive 92/43 / EEC of 21 May 1992 on the conservation of natural habitats and wild fauna and flora), which obliged the Member States of the European Union to introduce a legal basis for the development of a network of areas protecting endangered species on a European scale , animals and types of natural habitats. These two directives provide for the creation of a system of areas constituting a functionally coherent network - the European Ecological Network Natura 2000, enabling the implementation of a coherent nature conservation policy on the territory of the European Union, created by the Birds and Habitats designated areas of special bird protection (SPAs) and special areas habitat protection (SAC). The obligation to designate Natura 2000 sites applies to all EU Member States (General Directorate for Environmental Protection, 2014). The network in question is an open system, which means that the list of areas can be supplemented on a regular basis (Kamieniecka J., Wojcik B., 2010). Protection of these areas does not exclude their economic use, however, each project must be assessed. This concept is an attempt to reconcile the need for economic development with the need to protect the environment (Zapolska K., 2012). It is also an attempt to increase the social acceptance of activities related to nature conservation, understanding this problem and teaching people care for the environment in which they live. In 2009 Golebiewska revealed that the increase of relations with the environment positively affected the obtained efficiency. In addition, in the case of the need to limit economic activity in areas covered by Natura 2000, compensation was proposed (Jack B., 2009; Szramka M., Zebek E., 2013).

The experience of European Union countries shows that protected areas can provide tangible benefits to the local community, including material ones (Kielsznia M., 2010). Protected areas are usually located where there is high forest cover, poor soils, low population and insufficiently developed communication infrastructure and entrepreneurship (Zapolska K., 2012). An opportunity for the development of entrepreneurship is, for example, the creation of accommodation for tourists within their own farms or the running of an organic farm (Bera M., 2014). Organic farming is conditioned by various aspects, examples of which are presented in Table 1.

Table 1

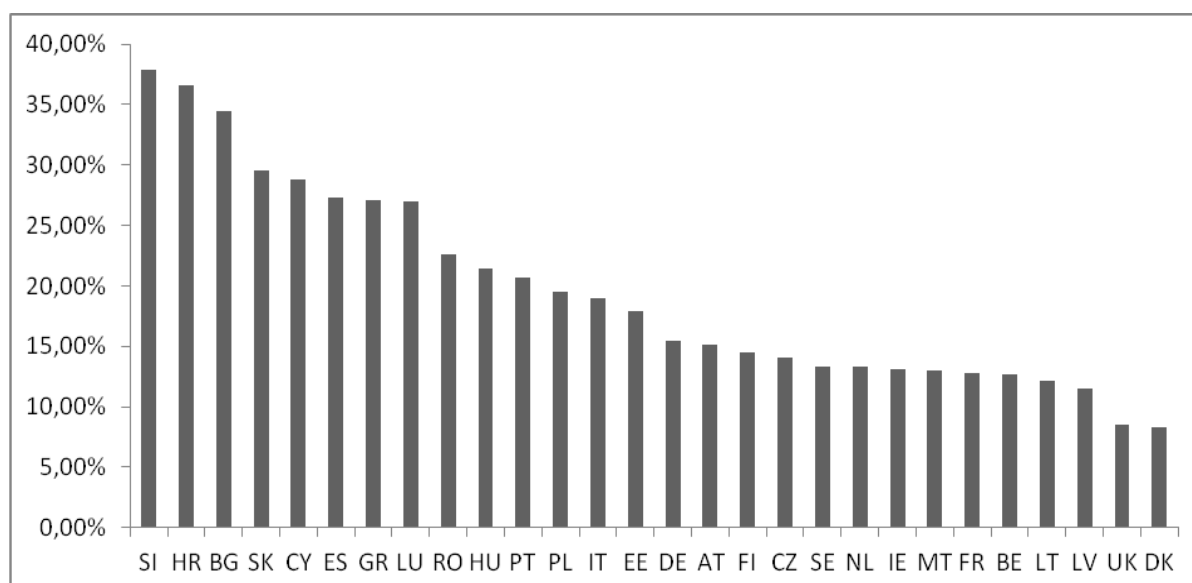
Conditions that create the possibility of developing organic production

Conditions that create the possibility of developing organic production	Financial	Environmental	Market	Social	Regional
	The possibility of financial support, subsidies	Biodiversity, soil fertility	Resulting from the prices of organic products against the background of conventional production	Lifestyle change	Resulting from the agrarian structure and the character of the region

Source: author's elaboration based on Siedlecka A. (2015). Conditions and prospects for the development of organic farms in natural valuable areas of the lubelskie province, Polish Association of Agricultural and Agribusiness Economists Scientific Annals, Volume 17, Issue 6, pp. 240-245

Research results and discussion

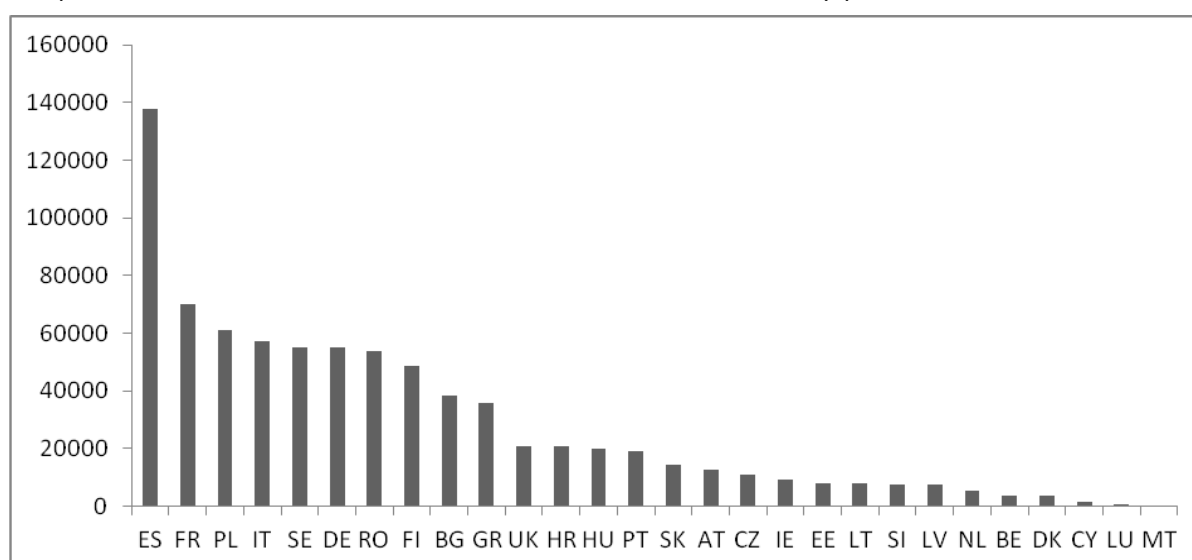
The ability to live in the vicinity of Natura 2000 protected areas is an everyday reality for many people, this is confirmed by Figure 1, where it is shown, how large these areas are in some countries.



Source: author's elaboration based on
http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm

Fig. 1. Proportion of land area in the European Union Member States covered by Natura 2000 (outcome as of 03.02.2016), %

In the case of Slovenia, Croatia and Bulgaria, protected areas of Natura 2000 occupy over 1/3 of the countries. While in Slovakia, Cyprus, Spain, Greece and Luxembourg, these extents are almost one third of the countries' area. On the other hand, the United Kingdom and Denmark have less than 10 % of the areas covered by the Natura 2000 Program. The remaining countries of the European Union have between 10 and 20 % of their area covered by protected areas Natura 2000.



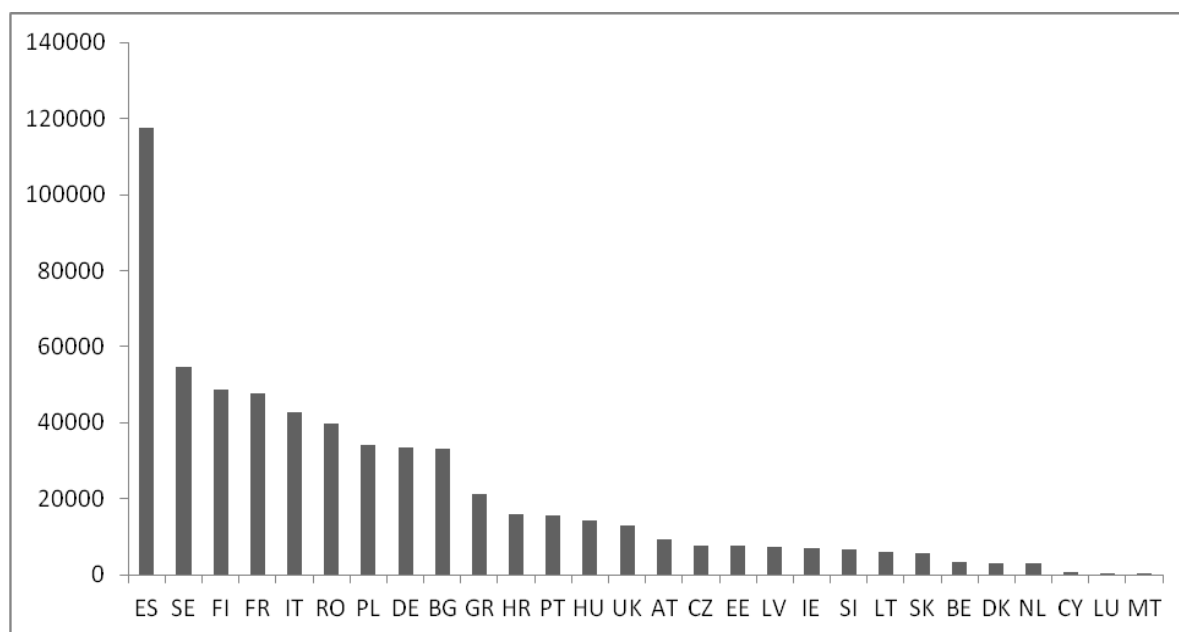
Source: author's elaboration based on
http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm

Fig. 2. Natura 2000 area per EU Member State (km²) (as of 03.02.2016)

Figure 2 shows Natura 2000 area per European Union Member State in square kilometres. It is seen as how very Spain stands out from the other countries. 137757 km² of surface is Natura 2000

protected areas. The second country with the largest surface area is almost half the size, it is France, whose protected areas are 69974 km². It should be emphasized that Spain is not the largest country in the European Union, France occupies 46855 square kilometres more than Spain. The smallest area of protected fields is in Malta covering only 41 square kilometres.

Then analysed Site of Community Importance – SCI, which is defined in the European Commission Habitats Directive (92/43/EEC) as a site which, in the biogeographical region or regions to which it belongs, contributes significantly to the maintenance or restoration at a favourable conservation status of a natural habitat type or of a species and may also contribute significantly to the coherence of Natura 2000, and/or contributes significantly to the maintenance of biological diversity within the biogeographic region or regions concerned (European Environment Agency). SCI terrestrial areas are the biggest also in Spain (Figure 3). SCI areas in Spain are 117395 km² followed by Sweden with more than half less – 54745 km².

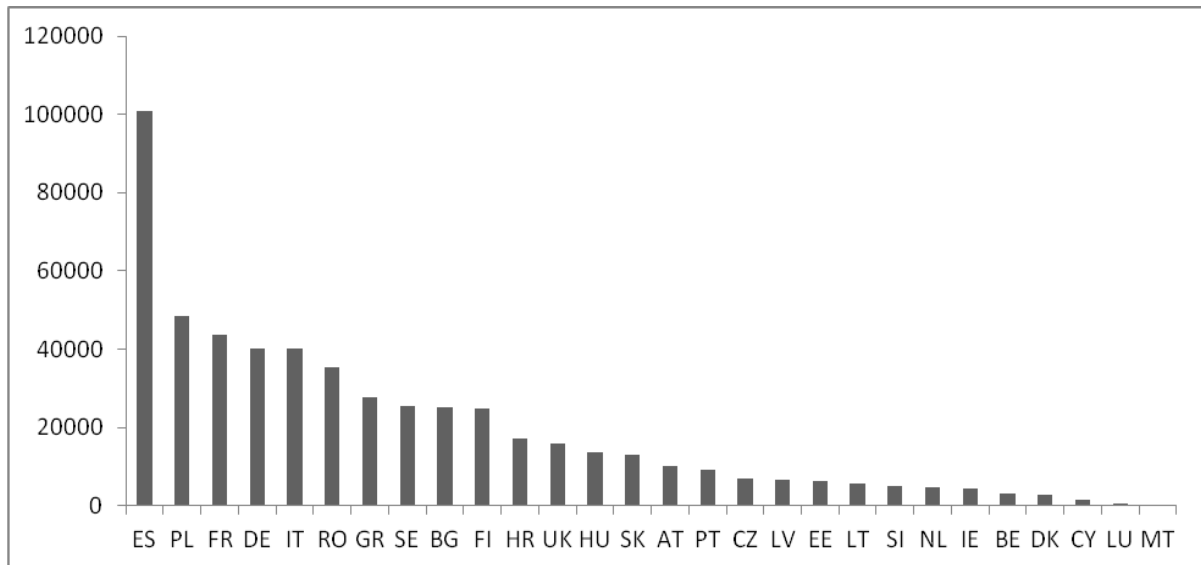


Source: author's elaboration based on
http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm

Fig. 3. SCI terrestrial area data per EU Member State (km²) (as of 03.02.2016)

Figure 4 presents Special Protection Areas – SPA. These are a designation under the European Union Directive on the Conservation of Wild Birds. Under the Directive, Member States of the European Union (EU) have a duty to safeguard the habitats of migratory birds and certain particularly threatened birds. Together with Special Areas of Conservation (SACs), the SPAs form a network of protected sites across the EU, called Natura 2000 (European Environment Agency).

Spain also excels here – 100972 km² are special SPA fields. Less than fifty thousand square kilometres are occupied by Poland ranking it in the second position. For comparison, Malta has only 13 km² of SPA terrestrial areas.



Source: author's elaboration based on
http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm

Fig. 4. SPA terrestrial area data per EU Member State (km²) (as of 03.02.2016)

Then, environmental protection transfers by environmental protection activity and institutional sector were analysed. The countries of the European Union were selected for which data continuity was maintained in 2010-2014. Therefore, the Czech Republic, Denmark, Germany, Spain, France, Italy, Latvia, Lithuania, Luxembourg, Poland, Slovenia, Sweden, the United Kingdom were selected for the research.

Table 2

Environmental protection transfers by environmental protection activity and institutional sector (million euro)

Country	2010	2011	2012	2013	2014
Czech Republic	187.55	464.74	487.34	163.9	103.97
Denmark	367.45	313.17	396.58	519.2	322.33
Germany	2 798	2 198	2 734	3 106	3 555
Spain	530	448	343	392	480
France	1 731.38	1 231.42	1 178.38	1 351.55	1 040
Italy	743	662	629	718	644
Latvia	8.19	13.33	28.31	25.58	24.28
Lithuania	3.79	8.4	11.91	32.13	57.67
Luxembourg	72.32	58.49	74.91	51.79	103.01
Poland	232.69	284.91	383.53	327.31	317.01
Slovenia	49.1	64.3	52.1	52.1	31.3
Sweden	255.1	289.6	312.15	307.69	265.98
United Kingdom	1 556.23	1 189.1	949.6	724.16	1 424.11

Source: <http://ec.europa.eu/eurostat/data/database>

Table 2 presents environmental protection transfers by environmental protection activity and institutional sector. In the analysed period 2010-2012, there was a visible increase in the environmental protection transfers by environmental protection activity and institutional sector in the countries of the so-called New Union, which later joined the EU. In the same period, a decline was recorded in other analysed countries. These data indicated a large irregularity among countries.

In the Table 3, the chain indices and the average pace of change in each country is specified. When analysing the values of the chain indices and average pace of change of the environmental protection transfers by environmental protection activity and institutional sector, it may be established that there was a very high irregularity in quotas. For example, for the Czech Republic, Denmark, Spain, France, Italy, Slovenia, the United Kingdom the average paces of change were negative, while in Germany, Latvia, Lithuania, Luxembourg and Poland they were positive.

Table 3

Chain indices and average pace of change of environmental protection transfers by environmental protection activity and institutional sector

Country	2011	2012	2013	2014	Average pace of change
Czech Republic	2.48	1.05	0.34	0.63	0.86
Denmark	0.85	1.27	1.31	0.62	0.97
Germany	0.79	1.24	1.14	1.14	1.06
Spain	0.85	0.77	1.14	1.22	0.98
France	0.71	0.96	1.15	0.77	0.88
Italy	0.89	0.95	1.14	0.90	0.96
Latvia	1.63	2.12	0.90	0.95	1.31
Lithuania	2.2	1.4	2.7	1.8	2.0
Luxembourg	0.81	1.28	0.69	1.99	1.09
Poland	1.22	1.35	0.85	0.97	1.08
Slovenia	1.3	0.8	1.0	0.6	0.9
Sweden	1.1	1.1	1.0	0.9	1.0
United Kingdom	0.76	0.80	0.76	1.97	0.98

Source: author's calculations based on <http://ec.europa.eu/eurostat/data/database>

Conclusions, proposals, recommendations

- 1) Natura 2000 is an area protection programme that not only cares about the environment, but also includes various possibilities for society. It is, for example, an impulse to start running ecological farming.
- 2) In Slovenia, Croatia and Bulgaria, protected areas of Natura 2000 occupy over 1/3 of these countries' areas.
- 3) Spain stands out from the other countries in case of Natura 2000 area in km². The second country – France is almost half the size.
- 4) In Spain, SCI terrestrial areas are also the biggest - 117395 km² followed by Sweden on the second position with more than half less – 54745 km². Spain also excels in SPA – 100972 km² are special SPA fields. Less than fifty thousand square kilometres are occupied by Poland ranking it in the second position.
- 5) In the analysed period 2010-2012, there was a visible increase in the environmental protection transfers by environmental protection activity and institutional sector in the countries of the so-called New Union, which later joined the EU. In the same period, a decline was recorded in other analysed countries.
- 6) Resolved environmental protection transfers by environmental protection activity and institutional sector indicated a large irregularity among chosen countries.

Bibliography

1. Bera, M. (2014). Rolnictwo ekologiczne jako czynnik rozwojowy gmin położonych na obszarach chronionych (Organic Farming as a Development Factor for Municipalities located in Protected Areas), *Progress in Economic Sciences*, No. 1, pp. 121-129.
2. Brodzinska, K. (2013). Kierunki i możliwości rozwoju gospodarstw rolnych na obszarach Natura 2000 (Directions and Possibilities of Farm's Development in Natura 2000 Area), *Polish Association of Agricultural and Agribusiness Economists Scientific Annals*, Volume 15, Issue 6, pp. 33-38.
3. Generalna Dyrekcja Ochrony Środowiska (2014). Natura 2000 w Europie (Natura 2000 in Europe), <http://natura2000.gdos.gov.pl/natura-2000-w-europie> Access: 04.02.2018.
4. Golebiewska, B. (2009). Production Resources and their Use in Farms of Varied Relations with the Environment in Poland, *Economic Science for Rural Development* No. 20, pp. 27-32.
5. Golebiewska, B. (2015). The Relationships of Ecological and Economic Use of Natural Resources, *Proceedings of the 2015 International Conference „ECONOMIC SCIENCE FOR RURAL DEVELOPMENT”* No37 Jelgava, LLU ESAF, 23-24 April 2015, pp. 114-121.
6. Golebiewska, B., Pajewski, T. (2015). Odpowiedzialność rolników za stan środowiska naturalnego (The Liability of Farmers for The Natural Environment), *Polish Association of Agricultural And Agribusiness Economists Scientific Annals*, Volume 17, Issue 2, pp. 64-68.
7. https://www.eea.europa.eu/help/glossary#c4=10&c0=all&b_start=0 Access: 03.02.2018
8. Jack, B. (2009). *Agriculture and EU Environmental Law*. Routledge, Belfast, p. 142
9. Kamieniecka, J., Wojcik B. (2010). Natura 2000 ABC dla turystyki (Natura 2000 ABC for Tourism), Instytut na rzecz Ekorozwoju, Warsaw, p. 17.
10. Kielsznia, M. (2010). Funkcjonowanie gospodarstw rolnych na obszarach chronionych w Polsce na przykładzie Kampinoskiego Parku Narodowego (Functioning of Farms in Protected Areas in Poland on the Example of the Kampinos National Park), *Folia Pomer. Univ. Technol. Stetin Oeconomica*, Volume 277, Issue 58, pp. 21-26.
11. Mickiewicz, B., Gotkiewicz, W. (2010). Znaczenie i rola obszarów Natura 2000 w życiu gospodarczym gminy (Meaning and Role of Natura 2000 Areas in Economic Life of Commune), *Ochrona Środowiska i Zasobów Naturalnych*, No. 45, pp. 145-152.
12. Natura 2000 Barometer (2016). http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm Access: 04.02.2018.
13. Perepeczko, B. (2012). Drobne gospodarstwa rolne na wiejskich obszarach Natura 2000 (Small Farms in the Natura 2000 Rural Areas), *Problems of Small Agricultural Holdings* 1/2012, pp. 115-128.
14. Siedlecka A. (2015). Conditions and Prospects for the Development of Organic Farms in Natural Valuable Areas of the Lubelskie Province, *Polish Association of Agricultural And Agribusiness Economists Scientific Annals*, Volume 17, Issue 6, pp. 240-245.
15. Szramka, M., Zebek, E. (2013). Ograniczenia realizacji przedsięwzięć na obszarach Natura 2000 (Limitations on The Implementation of Projects in Natura 2000 Areas), *Studia Prawnoustrojowe*, No. 22, pp. 195-206.
16. Wielewska, I. (2017). Eco-innovations and Sustainable Development of Businesses in Rural Areas of Kujawsko-pomorskie Province of Poland, *Proceedings of the 2017 International Conference "ECONOMIC SCIENCE FOR RURAL DEVELOPMENT" No. 44*, Jelgava, LLU ESAF, 27-28 April 2017, pp. 205-211.
17. Wos A., Zegar J. (2002). Rolnictwo społecznie zrównoważone (Socially Sustainable Agriculture). Wyd. IERiGZ, Warszawa. p. 111.
18. Zapolska, K. (2012). https://www.law.muni.cz/sborniky/dny_prava_2012/files/Verejnafinancnicinnost/ZapolskaKarolina.pdf Access: 06.02.2018

¹Corresponding author. E-mail address: joanna_stefanczyk@sggw.pl

²Corresponding author. E-mail address: longlh@buh.edu.vn

ECONOMIC POTENTIAL OF "GREEN" ECONOMY IN DEVELOPMENT OF RURAL TERRITORIES

Tatjana Tambovceva¹, Dr.oec.; Maria Tereshina², Dr.oec.

¹ Riga Technical University, ² Federal State Budget Education Institution of Higher Education "Kuban State University"

Abstract The purpose of the study was to examine the theoretical and methodological aspects of the economic potential of a "green" economy in the rural areas development. The research approach implies a holistic cognitive design that allows to explain and predict the development of the "green" economy constructive potential for the sustainable development of rural areas. As a result, on the basis of theoretical sources, the main characteristics of the rural development model were identified on the principles of a "green" economy, the successful international experience in implementing "green" economy practices in rural areas was generalized and the conditions necessary for realizing it were determined. Considering the significant differentiation of rural areas, the directions for realizing the "green" economy potential for each type of rural territory were concretized: economically integrated, transitional and depressed. On the example of the model region, there was proposed an approach allowing to assess the feasibility to realize the economic potential of a "green" economy and determine priority areas for private financing and state support. The integral indicator of resource security is a set of interrelated blocks formed as a result of the systemic interaction of external and internal factors. In general terms the indicator includes natural, technical, infrastructural, demographic, financial and investment components, as well as the social readiness resources of local communities for the "green" economy development (socio-psychological, regulatory, scientific, methodological). The research methodology included the analysis of the reports, studies and publications on various aspects of the "green" economy development in rural areas, case analysis, statistical data study, system and comparative analysis, expert surveys, cluster and variance analysis.

Key words: "green" economy, rural areas, local resources.

JEL code: Q01, R10

Introduction

Despite the prevalence of the urbanization process throughout the world, the importance of rural areas remains enormous and is determined by the growing importance of the functions they perform, especially environmental ones. In modern scientific discourse, considerable attention is paid to the search for the most effective socio-economic mechanisms for sustainable rural development. In different countries, there is a significant number of approaches and conceptual models, both at the level of theoretical developments and at the level of practical implementation of policies aimed at sustainable development of the agricultural sector and rural areas. At the same time, heterogeneity and significant differentiation of rural areas, as well as a significant variety of sectors of the "green" economy, objectively determine the lack of theoretical and methodological developments that adequately explain the formation of green "growth points" within the boundaries of rural areas, the trajectory of their development, and the relevance of the study of "green" growth constructive economic potential.

The hypothesis of the study is made by the provision that the basis for the formation of a modern sustainable development policy of rural areas is the identification and development of the economic potential of a "green" economy.

The research aim consisted of studying the economic potential of a "green" economy in the development of rural areas in theoretical and methodological aspects.

To achieve this specified goal, the following tasks were identified:

- on the basis of theoretical sources, to identify the main characteristics of the rural development model on the principles of a "green" economy;

¹Corresponding author. Tel.: +371-29492724, e-mail address: Tatjana.Tambovceva@rtu.lv

²Corresponding author. Tel.: +7 861 219 96 27, e-mail address: mwstepanova@mail.ru

- to generalize the successful international experience in implementing the practices of a "green" economy in rural areas, to determine the conditions necessary for this;
- to outline the main possible directions for the "green" economy development in rural areas of various types;
- to propose an approach to assessing the resources of local communities in rural areas allowing to estimate the opportunities for realizing the economic potential of a "green" economy and to determine priority directions for private financing and state support on the example of a model region.

The research methodology included the analysis of the reports, studies and publications on various aspects of "green" economy development in rural areas, case analysis, statistical data study, system and comparative analysis, expert surveys, cluster and variance analysis.

The novelty of the research lies in the integration of separate scientific results into a coherent cognitive construction that will allow to describe, explain and predict the development of the green economy constructive potential for the sustainable development of rural areas.

Research results and discussion

1. Problem statement. Theoretical insights

The mechanisms of rural development have a dynamic nature, changing not only according to the strategies of various social and institutional structures and political forces, but also owing to changes of global trends relating to socio-economic development. Since rural areas are not closed, isolated spaces the technological and institutional changes characteristic of modern society on the whole to some extent affect the architecture of their socio-economic design.

Traditional approaches to the development of rural areas considered them mainly as a set of resources and a reservoir for the development of production processes in agriculture and recognized their providing and lagging character in comparison with urban (indisputable "poles of growth"). It can be said that, at the present time, as opposed to this approach, a new approach to rural development has been formed (Ploeg J., 2002; Guinjoan E. et.al, 2016). The focus of the new approach is more directed towards qualitative rather than quantitative parameters of rural areas development and takes into account specific local resources of domestic communities in the field of development, emphasizing environmental aspects. The new frontier that forms the basis for the sustainable development of rural areas is determined by the "green" and circular economy paradigms and integrates a whole range of research approaches, including a new theory of "rural networks" (Kristensen K., 2016; D'Amato D. et.al, 2017), which also includes institutional models of the eco and bio-economy (Marsden T., 2008).

The analysis of literary sources makes it possible to identify the main characteristics of the rural development model on the principles of the "green" economy. The necessity to introduce the principles of "green" economy into the economic practice of rural areas is determined, first of all, by the significant dependence of the rural economy on industries sensitive to the qualitative parameters of the environment, the presence of close integration links between natural, economic and social components and the increasing negative impact of agricultural production on the environment.

Unlike traditional environmental approach which implies, to a large extent, certain limitations of economic development in rural areas "green growth" serves as a catalyst for investment and innovation, creates new economic opportunities, serves as a basis for structural shifts in favour of

resource-saving, technologically advanced industries and activities (Loiseau E. et.al, 2016; Melece L., 2016).

Goals of rural development management	<ul style="list-style-type: none"> •Local resources use •Diversification of activities through the "green" industries development (RES development, waste recycling, eco-and agrotourism, circular economy) •New forms of cost reduction (resource-saving))
The main drivers of development	<ul style="list-style-type: none"> •State support at national and regional level •Political will at the local level •Demand for ecological goods and services in rural areas •Socio-ecological responsibility of business •Deterioration of the environment
The account of the particular territory specifics	<ul style="list-style-type: none"> •Emphasizing the importance of rural identity preservation and the formation of local socio-ecological identity •Comprehensive assessment of the resource potential of the territory •The formation of points of "green" growth (ecoloci) with subsequent diffusion of successful practices
Dominant sectors of the economy	<ul style="list-style-type: none"> •The central place – intensive agriculture of the traditional type with the introduction of environmentally friendly technologies •The central place – organic agriculture •Diversification of the local economy on the basis of "green" branches and industries and the circular economy
The role of local communities	<ul style="list-style-type: none"> •The central place – network local structures •Rural development is understood as a multi-factor process •The central place – the concept of partnership
Features of institutional structures	<ul style="list-style-type: none"> •Active forms of intersectoral interaction •Multilevel management

Fig. 1. **The model of the "green" development in rural areas: the main characteristics (compiled by the authors)**

Individual aspects of this issue in various contexts have been studied quite well. The problems of sustainable development of rural areas, strategies and models for counteracting negative processes are the subject of research in almost all countries (Horlings L. G., 2014; Yashalova N., 2014). Studies on "green" investment and "green" innovations in rural development are mainly research and methodological developments of international organizations (Final Report..., 2016; Green economy opportunities..., 2017; OESD, 2017). A large layer of research refers to organic farming (Willer H., 2017) and eco-settlements (Christian D., 2003; Gilman R., 1991; Petrov V., 2008).

Nevertheless, the existence of certain "gaps" between the challenges and threats constantly arising in the socio-economic space of rural areas and the theoretical constructions allowing to explain the changes raises the question of the new conceptual schemes development and appropriate analytical tools for the study of the new reality of the rural areas development in the context of a "green" economy.

2. Practical efforts in the field of rural development on the basis of "green" growth

Currently, a large number of rural development projects based on the principles of a "green" economy are being implemented around the world, but the most systematic nature of this process can be seen in the European Union. The "green" development of the rural economy is one of the priority activities of the European Rural Development Network (ENRD) for the period from 2014

¹Corresponding author. Tel.: +371-29492724, e-mail address: Tatjana.Tamboveceva@rtu.lv

²Corresponding author. Tel.: +7 861 219 96 27, e-mail address: mwstepanova@mail.ru

to 2020 and is related to the objectives of restoring, preserving and strengthening the ecosystems of rural areas, as well as promoting more efficient use of resources and supporting the transition to a low-carbon and climate neutral economy in agricultural, food and forestry sectors (ENRD, 2017; Pitkanen K. et al, 2016; Melece L., 2008).

An important tool to promote the introduction of a "green" economy in rural areas is the Rural Development Programmes (RDPs). The main activities supported by such programmes include green technologies in waste management, sustainable water management, eco-tourism, sustainable buildings, services and infrastructure investments in natural capital, for example, wetlands, forests or floodplains, "green" infrastructure, providing ecosystem services, sustainable management of agriculture and forestry, adaptation to climate change, improving energy efficiency and developing renewable energy, green public procurement. The fastest growing sector of the "green" economy in rural areas is organic agriculture (Table 1).

Table 1

The main indicators of the organic farming development in the world

Region	Organic area (ha)	Shares of the global organic farmland area, %	Organic share of total farmland area, %	Growth 2014-2015, %	Number of organic producers
Africa	1683482	3	0,1	+33,5	719720
Asia	3965289	8	0.2	+11,1	851016
Europe	12716969	25	2.5	+8,2	349261
Latin America	6744722	13	0.9	-1,3	457677
North America	2973886	6	0.7	+21,0	19138
Oceania	22838513	45	5.4	+23,2	23728
Total	50919006	100	1,1	+14,7	2420540

Source: author's calculations based on the FiBL survey, 2017

At the same time, it should be noted that although the development indicators of this sector of the "green" economy differ significantly across the countries, nevertheless, they demonstrate the considerable economic potential (Table 2).

Table 2

Comparative indicators of the organic agriculture development in Latvia and Russia

	Organic area, ha	Organic share of total agricultural land, %	Number of organic producers	Organic retail sales, m euro (2011)
Latvia	231608	12,8	3634	4
Russia	385140	0,2	82	120

Source: author's calculations based on the FiBL & IFOAM, 2017

It is worth mentioning that in many European countries it is the state socio- structural directives "from above" that created the "initial model" for the "green" development of the rural economy. That is why the role of national governments with their significant administrative and financial resources in the process of transforming the existing economic models towards their "greening" cannot be overemphasized. Changes in legislation and policy, investment of public funds in the development of "green" industries, are considered to be important tools for the transition to a "green" economy, which is underscored by many leading experts. But recently, at the level of individual rural communities, there have been a sufficient number of cost-effective projects initiated "from below" with minimal financial support from the state or without it. The main conditions conducive to this process include the growing demand for "green" goods and services of

¹Corresponding author. Tel.: +371-29492724, e-mail address: Tatjana.Tamboveceva@rtu.lv

²Corresponding author. Tel.: +7 861 219 96 27, e-mail address: mwstepanova@mail.ru

rural areas, the growing willingness of consumers to pay for ecosystem services and the use of economic opportunities created by this demand, the revival or revitalization of the traditions of cooperation and collaboration within local communities, the improvement of social capital.

Basing on the generalization of the experience of implementing successful projects and programs of "green" development in rural areas, it is possible to identify the most characteristic features that allow to fully realize their economic potential: focus on the already existing demand in the market or social problems (Tereshina M., 2014), the balance of environmental, social and economic goals, their clarity and economic validity, innovativeness, the availability of sustainable network communications and transparent intersectoral interaction, the diversification of financial sources, adaptability to changes in external conditions, the availability of educational programs, the control of planned and actual indicators, the translation of successful experience and results, the formation of socio-ecological identity and a new ecological mentality, the norms and level of trust creating between members of the local community, as well as information, technologies and the image of the territory.

3. The basic directions of economic potential development of "green" growth in rural areas of various types

Significant differentiation of rural areas makes it necessary to identify specific directions for realizing the "green" economy potential for each type of rural area. In most countries of the world, the criterion for the division of urban and rural areas is the population, the density of settlement and the nature of employment. As defined by the Organization for Economic Cooperation and Development (OECD), rural areas cover the population, land and other resources of the open landscape and small settlements outside the immediate economic areas of influence of major urban centres. The OECD typology includes the following types of rural areas.

- 1) Economically integrated territories in close proximity to economic centres are characterized by relatively high population density, significant supply of jobs, and well-developed infrastructure. In these areas, the preservation of ecological balance and the protection of the natural heritage are of primary importance. Despite good production and marketing conditions, agricultural production in these areas is constrained by high prices for land.
- 2) Transitional territories with medium development. They are located in places connected with transport highways. These regions are highly dependent on agriculture and related industries. The opportunities for their development are determined by two factors: first, the growth rates in the production structure and agriculture, and secondly, the development of industries that create alternative employment opportunities for the population.
- 3) Far from the centres of economic activity. Such regions are characterized by low population density, low income and high dependence on agriculture, an unfavourable demographic structure. Opportunities for economic development are very limited, which makes it possible to characterize them as depressive.

Depending on the type of rural area, various directions for realizing the potential of "green" growth are possible (Table 3).

Table 3

The directions of the "green" economy development depending on the type of rural area (compiled by the authors)

Type of rural area	Directions of "green" development
Economically integrated	Waste processing, development of resource and energy saving technologies in housing and communal services, development of environmentally friendly modes of transport, development of technologies and RES production, introduction of resource-saving technologies based on intensive forms of production and processing of agricultural products
Transitional	Organic agriculture, agrarian tourism, development of renewable energy sources, aquaculture, afforestation
Depressive	Provision of local communities with energy resources based on local renewable energy sources, development of organic agriculture, ecological tourism, preservation of landscapes, forest and meadow lands, use of labour potential of local communities to produce products from local natural sources of raw materials.

Naturally, the impulses for the "green" economy development are formed depending on the resource potential and specific conditions prevailing in the local communities of rural areas, with their further distribution.

In this regard, it seems interesting to develop an approach to assessing the resources of local communities in rural areas allowing to estimate the feasibility of the economic potential of the "green" economy. The actualization of this approach is also connected with the fact that the allocation of the most resource-intensive rural communities will allow to determine the priority directions for private financing and state support.

4. The assessment of the "green" economy economic potential in the context of the resource capabilities of local communities (case-study of the Krasnodar region)

The choice of the Krasnodar region as an object of study is determined by the fact that this is one of the most well-known agricultural regions where practically all branches of agricultural production are developed and there are all types of rural territories. Agricultural lands which include arable land, hayfields, pastures, deposits, as well as lands under perennial plantations, occupy the largest part of the territory of the region - 4.721.6 thousand hectares (62.5 %), and the rural population is more than half of the total population of the region. At the same time, the region has a significant natural and resource potential for the development of renewable energy, ecological tourism, organic agriculture and other important areas of the green economy. Risks of sustainable development of the rural areas in the region are related to the issues of food security, limited offer of natural and energy resources, qualified labour, a low level of innovative and modern technologies use, a strong dependence on the environmental quality and increasing vulnerability to climate change.

The strategy of social and economic development of the Krasnodar region, which is currently being developed as a strategic goal positions the Krasnodar region as one of the "leading regions of the smart and green agribusiness development". It seems that the basis for achieving this goal should be complex and systemic integration into the management system of methods, tools and principles of the "green" economy.

Under the resources of the local community in the development of the "green" economy development we understood the complex indicator which includes current resource opportunities, as well as possible directions of their use in order to obtain additional social, economic and environmental effects. This indicator is a set of interrelated resource blocks formed as a result of the systemic interaction of external and internal factors. In general terms, this indicator includes

¹Corresponding author. Tel.: +371-29492724, e-mail address: Tatjana.Tambovceva@rtu.lv
²Corresponding author. Tel.: +7 861 219 96 27, e-mail address: mwstepanova@mail.ru

natural, technical, infrastructural, demographic, financial and investment components, as well as resources for social readiness of local communities to develop a "green" economy (socio-psychological, regulatory, scientific and methodological).

The assessment of the natural and technical, infrastructural, demographic and financial resources of the local rural communities was carried out on the basis of a quantitative indicators system selected and verified by means of peer review, corresponding to the following criteria: the reflection of the basic resources of the "green" economy development, the compliance with the objectives of "green" development, the possibility of the resource management at the local and regional levels, the availability of information on resources (availability of relevant indicators in the system municipal statistics), the ability to measure resources based on the objective quantitative data (Table 4).

Table 4

The components of the integrated indicator of the rural community resources in the "green" economy development

Integral indicator component	Components
Natural and technical resources	The total solar radiation on the horizontal surface in the territory of the municipality, the average annual wind speed, the annual volume of waste generated, the forest cover of the territory, the specially protected natural areas, the agricultural land area, the amount of pollutants discharged from all stationary sources
Infrastructure resources	The number of waste recycling enterprises, the length of public roads of local importance owned by municipalities at the end of the year, the proportion of the length of public roads of local importance that do not meet regulatory requirements in the total length of public roads of local significance, the proportion of the population settlements with no regular bus (rail) service with the administrative centre in the total population, the specific amount of electricity consumption per resident, the specific value of thermal energy consumption per 1 sq. km. m of the total area, the number of places in collective accommodation facilities
Demographic resources	The average annual number of permanent population, the number of able-bodied population, natural population growth
Financial and investment resources	Surplus / deficit of the local budget, current (operational) costs for environmental protection, including payment for environmental protection services, the volume of investments in fixed assets (excluding budgetary funds) per capita, the number of small and medium-sized businesses per 10 thousand people.

The resources of social readiness of rural communities for the transition to a "green" economy were analysed on the basis of qualitative scoring expert assessments on the following parameters:

- social and psychological willingness (density of network structures, the degree of social and ecological identity formation, the existence of the will and desire for social and environmental transformations, the activity of local interest groups in the environmental sphere, the existence and viability of local environmental initiatives, socio-environmental conflicts and the ability to their constructive solution);
- regulatory legal readiness characterizing the degree of completeness of the legal and regulatory framework necessary to implement reforms in the sphere of the "green" economy;
- scientific and methodological readiness characterizing the availability, as well as the degree of development of scientific and methodological materials (directions, recommendations, instructions) necessary for the implementation of socio-economic reforms, the degree of awareness of local communities about the state of the environment in the place of residence, the degree of reflection of environmental content in educational programs at educational institutions and the media).

The use of the cluster and variance analysis method made it possible, in the first approximation, to locate groups of high resource, medium resource and scarce resource territories. At the next

stage the "weak links" of development which are actual for each territory, were diagnosed by comparison with the selected as a reference resource territory which will allow to update the forecasting tools and determine the directions and ways of management influence on the development of the "green" economy.

Conclusions, proposals, recommendations

- 1) Currently, a new model of sustainable development of rural areas is being formed. It is based on the concept of a "green" economy and has specific management objectives, functions that are performed by other branches of the economy, new development drivers and it is characterized by an increase in the role and significance of local communities and intersectoral and interlevel interaction in network institutional structures.
- 2) The following conditions are necessary for the successful implementation of the "green" economy economic potential in the development of rural areas: focus on existing demand in the sphere of market or social problems, the balance of environmental, social and economic goals, their clarity and economic validity, innovation, the availability of sustainable networks communications and transparent intersectoral interaction, the diversification of funding sources, the adaptability to changes in the external conditions, the availability of educational programs, the monitoring of planned and actual indicators, the broadcasting of successful experience and results, the formation of socio-ecological identity and a new ecological mentality, norms and the level of trust between members of the local community as well as information support.
- 3) Significant differentiation of rural areas objectively determines the need to specify the directions for realizing the "green" economy potential with respect to each type of rural territory: economically integrated, transitional and depressed.
- 4) An approach to assessing the resources of local communities in rural areas is proposed on the example of the model region, which allows to assess the possibilities for implementing the "green" economy economic potential and determine the priority areas for private financing and state support. The integral indicator of resource security is a set of interrelated blocks, formed as a result of the systemic interaction of external and internal factors. In general terms, the indicator includes natural, technical, infrastructural, demographic, financial and investment components, as well as resources of social readiness of local communities to develop a "green" economy (socio-psychological, regulatory, scientific and methodological).
- 5) Within the framework of this article, the proposed approach is considered in the most general form in order to demonstrate its capabilities for different types of rural territories. At the same time, the issues of adjusting and detailing the indicators depending on specific conditions of rural areas, their addition and clarification remain open and the authors will be grateful for any broader discussion, criticism and contributions to the topic under consideration.

The research was carried out with the support of the RFBR project No. 16-32-0016t "The development of a mechanism for implementing the concept of a "green" economy in local practices of the domestic communities"

Bibliography

1. Christian, D. (2003). *Creating a Life Together: Practical Tools to Grow Ecovillages and Intentional Communities*. New Society Publishers, 272 p.
2. D'Amato, D, Droste, N, Allen, B, Kettunen, M, Lahtinen K, Korhonen J, Leskinen P, Matthies, BD, Toppinen A, (2017). Green, Circular, Bio Economy: a Comparative Analysis of Sustainability Avenues, *Journal of Cleaner Production*, Volume 168, pp. 716-734. 10.1016/j.jclepro.2017.09.053.

¹Corresponding author. Tel.: +371-29492724, e-mail address: Tatjana.Tamboveceva@rtu.lv

²Corresponding author. Tel.: +7 861 219 96 27, e-mail address: mwstepanova@mail.ru

3. *Final Report of the ENRD Seminar: Promoting the Transition to a Green Economy September* (2016). Retrieved: https://enrd.ec.europa.eu/sites/enrd/files/s2_ge_finalreport.pdf
4. Gilman R. (1991). *Eco-Villages and sustainable settlements*. SPb: The Center for Civil Initiatives. 266 p.
5. *Green Economy Opportunities for Rural Europe Luxembourg: Publications Office of the European Union*, (2017). Retrieved: <https://enrd.ec.europa.eu/sites/enrd/files/publi-enrd-rr-23-2017-en.pdf>
6. *Green Growth Indicators*. (2017). Retrieved: <http://oe.cd/ggi>
7. Guinjoan, E., Badia, A. & Tulla, A. (2016). The New Paradigm of Rural Development. Theoretical Considerations and Reconceptualization Using the 'Rural Web'. Volume 71, pp. 495-500. 10.21138/bage.2279.
8. Horlings, L.G., Marsden, T.K. (2014). Exploring the "New Rural Paradigm" in Europe: Eco Economic Strategies as a Counterforce for Global Competitiveness Agenda. *European Urban and Regional Studies*, Volume 21, Issue 1, pp. 4-20. 10.1177/0969776412441934
9. Kristensen, D.K., Kjeldsen, C. & Thorsoe, M. (2016). Enabling Sustainable Agro-Food Futures: Exploring Fault Lines and Synergies Between the Integrated Territorial Paradigm, Rural Eco-Economy and Circular Economy. *Journal of Agricultural and Environmental Ethics*, Volume 29, Issue 5, pp. 749-765. 10.1007/s10806-016-9632-9
10. Loiseau, E., Saikku, L., Antikainen, R., Droste, N., Hansjürgen, B., Pitkanen, K., Leskinen, P., Kuikman, P. & Thomsen, M. (2016). Green Economy and Related Concepts: an Overview. *Journal of Cleaner Production*, Volume 139, pp. 361-371. 10.1016/j.jclepro.2016.08.024
11. Marsden, T. & Ploeg, J.D. van der. (2008). *Preface: Exploring the Rural Web, The Dynamics of Regional Rural Development*. Retrieved: <http://edepot.wur.nl/368781>
12. Melece, L. (2010). Environmentally Friendly Agriculture: Development Issues in Latvia. *Socialiniai tyrimai/ Social Research*, Volume 2, Issue 19, pp. 37-46.
13. Melece, L. (2016). Challenges and Opportunities of Circular Economy and Green Economy. 15th International Scientific Conference on Engineering for Rural Development Location: Jelgava, LATVIA Date: MAY 25-27, 2016 *15th International Scientific Conference: Engineering For Rural Development Book Series: Engineering for Rural Development Volume 15*, pp. 1162-1169.
14. Petrov, V.I. (2008). *The Formation of Environmentally Sustainable Forms of Farming in Agricultural Lands: Background and Prospects* // Actual problems of Russian Law. — M.: Moscow State Law Academy, Volume 1., pp. 126-134.
15. Pitkanen, K., Antikainen, R., Droste, N., Loiseau, E., Saikku, L., Aissani, L., Hansjürgens, B., Kuikman, P., Leksinen, P. & Thomsen, M. (2016). What Can be Learned from Practical Cases of Green Economy? - Studies from Five European Countries. *Journal of Cleaner Production*, Volume 139, Issue 15, 139, pp. 666-676. DOI: 10.1016/j.jclepro.2016.08.071
16. Ploeg, J.D. van der, Long, A. & Banks, J. (2002). *Living Countrysides. Rural Development Processes in Europe: The State of the Art*. Doetinchem: Elsevier, 2002. 231 p.
17. Promoting the Transition to a Green Economy ENRD Thematic Group Report. Retrieved: http://enrd.ec.europa.eu/thematic-work/greening-rural-economy/transition-green-economy_en
18. Tereshina, M.V. & Degtyareva, I.N. (2014). The Formation and Development of Organic Products in Markets New Economic Conditions: Regional Aspects. *Theory and Practice of Social Development*. No. 15. pp. 102-105.
19. Willer, H. & Lernoud, J. (Eds.) (2017). *The World of Organic Agriculture. Statistics and Emerging Trends 2017*. Research Institute of Organic Agriculture (FiBL), Frick, and IFOAM – Organics International, Bonn. Version 1.1 of February 08, 2017.
20. Yashalova, N. (2014). Environmental and Economic Priorities of Agriculture in the Transition to a Green Economy // *Environmental Economics: an Overview*. No 4. pp. 46-56.

RECENT CHANGES IN AGRICULTURAL LAND OWNERSHIP AND TRANSACTION STRUCTURE IN LATVIA

Visvaldis Valtenbergs¹, Dr. sc. pol.; Zanīta Avotniece², M. geogr.; Ilona Beizitere³, M. eoc.;
Inese Grumolte-Lerhe⁴, Dr. sc. pol.

^{1,4}University of Latvia, Saeima Analytical Service; ²Saeima Analytical Service; ³Rīga University of Business, Arts and Technology, Saeima Analytical Service

Abstract. Land grabbing, characterised by the amassing of large amounts of land property in the hands of a few landowners, is a topical problem throughout the world. This study characterises the ownership and market situation of agricultural land in Latvia from 2012 till 2017. In 2014, the Law "On Land Privatisation in Rural Areas" was amended establishing various restrictions for natural and legal persons to purchase agricultural land. The effects of these amendments varied in each group of agricultural land market players. The study analyses the structure of agricultural land ownership in Latvia, agricultural land sale and purchase transactions in Latvia and the dynamics of transactions based on data obtained from State Land Service. The results of the study demonstrate that the structure of agricultural land ownership shows indications of property concentration. The proportion of legal entities as owners is significantly increasing, as is the amount of agricultural land they own and the number of purchases they have made. It has been found that properties containing large areas of agricultural land are owned by legal entities with foreign capital. In turn, there is only a small proportion of natural persons of foreign citizenship (hereinafter referred to as "foreign citizens") within the overall agricultural land owner structure.

Key words: agricultural land, agricultural land market, agricultural land ownership.

JEL code: Q15, R52

Introduction

Issues pertaining to land and water resource accessibility are continuously on the global agenda. They are raised in discussions in various contexts regarding such global challenges as food safety and threats to sustainable development. These threats arise not only from the insufficiency of relevant resources, but also the efficiency of their use. In this context, both in relation to land and other natural resources, various labels are being employed, overall indicating that these natural resources are being accumulated by certain entities in such quantities that can be viewed as disproportionate and dangerous, such as land grabbing, land speculation, and land concentration. It must be noted that by no means does land grabbing imply illegal conduct. Favourable conditions may arise out of existing regulations or due to deficiencies therein. Within Europe, land grabbing is an especially widespread phenomenon in Central and Eastern Europe, in regions with fertile soil (Constantin C. *et al.*, 2017; Haerlin B. & Fuchloch S., 2016).

Studies show that land grabbing has intensified in recent years in the European Union in general and the new Member States in particular (Constantin C. *et al.*, 2017; Kay S. *et al.*, 2015). An obvious consequence of land grabbing and other land related economic and social changes is land concentration, meaning that a small number of farms control a large amount of agricultural land. European level surveys have found that 3 % of large agricultural land owners (more than 100 ha) own 52 % of the total agricultural land area, whereas 75 % of small agricultural land owners (less than 10 ha) own only 11 % of the available agricultural land (TNI, 2016). The large farms have expanded in the European Union at the expense of small farmers (DG IP, 2015; Eurostat, 2011), and these trends not only facilitate the degradation of the land and environment, but have an adverse effect on European food safety and local food culture as well. In Europe, traditional farming practices are being replaced by the intensive agriculture methods of large corporations (UN FAO, 2011; DG IP, 2015). Globally, the phenomenon of land grabbing gained the spotlight in

¹Corresponding author. E-mail address: visvaldis.valtenbergs@lu.lv

²Corresponding author E-mail address: Zanita.Avotniece@saeima.lv

³Corresponding author E-mail address: Ilona.Beizitere@saeima.lv

⁴Corresponding author E-mail address: Inese.Grumolte-Lerhe@saeima.lv

2007 – 2008 due to the steep increase in food prices at the time. However, land grabbing remains a cause for concern, including in the European Union (DG IP, 2015). A study on the regulation of land markets in Europe recommends that Eastern European countries find a balance between a highly liberal and protectionist approach (Swinnen J. *et al.*, 2016). Recognizing the strategic importance of the land resource, the European Parliament has also highlighted the need to look at the agricultural land market more broadly than in the framework for the free movement of goods, services, capital and people.

After the abolition of moratorium on the purchase of land by foreign buyers, several new Member States of the European Union, including, Latvia has also introduced restrictions on the purchase of agricultural land by imposing different requirements on the buyer and seller of land (Ciaian P. *et al.*, 2012). In addition, in 2014, amendments to the Law "On Land Privatization in Rural Areas" (hereinafter referred to as "Law") were introduced, which provided for a series of restrictions on the purchase of agricultural land by natural and legal persons (Law On Land..., 1992). Among these restrictions were the introduction of professional qualifications in agriculture and language proficiency tests for the foreign land buyers beyond the certain threshold, and others. In 2015 The Land Fund was established with the main aim of monitoring agricultural land transactions for areas above the threshold stipulated in the Law. It also acquired pre-emptive rights to agricultural land.

Therefore the purpose of this study is to characterize the ownership structure of agricultural land and changes in trading transactions in Latvia during the period from 2012 to 2017 in order to detect the most recent tendencies and the impact of the agricultural land regulation. The study takes innovative approach by examining the role of the foreign capital in agricultural land purchases, by gathering data about the owners of legal entities with domestic and foreign capital.

Data and methodology

The information used for the purposes of characterising the agricultural land market and changes therein from 2012 to 2017 has been obtained from the State Land Service (hereinafter referred to as SLS). The SLS National Real Estate Cadastre Information System provided information about land parcels containing agricultural land, their owners, that is, natural persons (with an indication "citizen of Latvia", "non-citizen of Latvia", "stateless person of Latvia" or "foreign citizen") or legal entities, as well as the total amount of agricultural land owned and the location of each property.

In order to characterise purchase and sale transactions with land parcels containing agricultural land, information on completed transactions was obtained, adhering to the same criteria, from the SLS Real Estate Market Information Data Base for the period from 1 January 2012 until 31 December 2016. For the purposes of this study, the selection of agricultural land properties and transactions was based on the following criteria:

- land parcels where the land use is agricultural land (arable land, fields, pastures and orchards);
- land parcel has a status of "real estate";
- land parcel is owned by a natural person or legal entity;
- land parcel is not divided into apartment properties.

In order to identify the presence of foreign capital within the fixed capital of legal entities which have concluded sale or purchase transactions involving agricultural land, information was

¹Corresponding author. E-mail address: visvaldis.valtenbergs@lu.lv

²Corresponding author E-mail address: Zanita.Avotniece@saeima.lv

³Corresponding author E-mail address: Ilona.Beizitere@saeima.lv

⁴Corresponding author E-mail address: Inese.Grumolte-Lerhe@saeima.lv

requested from "Lursoft IT", Ltd. regarding the proportion of capital contributions by shareholders of legal entities and the citizenship of the shareholders, requesting additional detailed information on some companies.

Research results are based on a research report prepared by the Analytical Service of Saeima of Republic of Latvia "Trading Restrictions of Agricultural Land in Europe and the Situation in Agricultural Land Market in Latvia" (Grumolte-Lerhe I. *et al.*, 2017).

Results and discussion

1. Agricultural land and ownership structure in Latvia over the period 2012 - 2017

Agricultural land ownership structure in Latvia has undergone major changes between 2012 and 2017 (Table 1). Although the total area of agricultural land owned by legal entities and natural persons has decreased over this period, the total number of agricultural properties has increased, which is remarkable given the shrinking ownership. Such a trend is indicative of increasing consolidation of agricultural land and property. Another manifestation of this trend is the rising number of agricultural properties and areas registered to a single owner, which has been observed over the same period. In 2017, the average agricultural land area owned by a single entity was 8.71 hectares; natural persons owned areas well below this average, whereas legal entities owned on average around 60 hectares of agricultural land. Most natural persons owned up to two agricultural properties, whereas legal entities owned about eight properties on average.

Table 1

Changes in agricultural land property ownership in Latvia over the period 2012-2017

Agricultural land ownership characteristics	Year					
	2012	2013	2014	2015	2016	2017
Average area of agricultural land owned by a single entity (ha)	8.67	8.72	8.73	8.74	8.72	8.71
Average number of agricultural land properties owned by a single entity	2.0	2.0	2.0	2.1	2.1	2.1
Total number of agricultural land owners	242 980	242 683	242 363	242 200	242 364	241 920
Total number of agricultural land properties	485 941	492 782	496 195	498 963	500 875	501 972
Total area of agricultural land properties owned by different entities (ha)	2 107 981	2 115 936	2 115 688	2 117 409	2 114 424	2 106 196

Source: authors' calculations based on the research results

The number of agricultural properties and the area of agricultural land owned by natural persons, including citizens of Latvia, non-citizens of Latvia and the stateless persons of Latvia, has decreased since 2012, and so has the number of such owners. However, the share of foreign-owned agricultural land registered to citizens of other countries has increased.

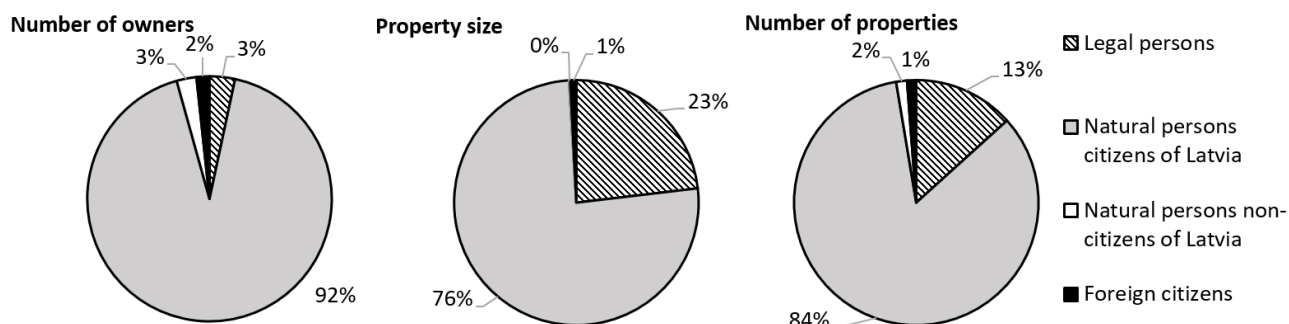
The biggest increase was in the share of legal entities, with such owners holding around 20 000 more agricultural land properties and about 140 000 ha more of all agricultural land in comparison to 2012. So, looking at the agricultural land ownership structure in 2017, we can clearly see that a relatively small number of owners – legal entities – owned almost a quarter of all available agricultural land (Figure 1).

¹Corresponding author. E-mail address: visvaldis.valtenbergs@lu.lv

²Corresponding author E-mail address: Zanita.Avotniece@saeima.lv

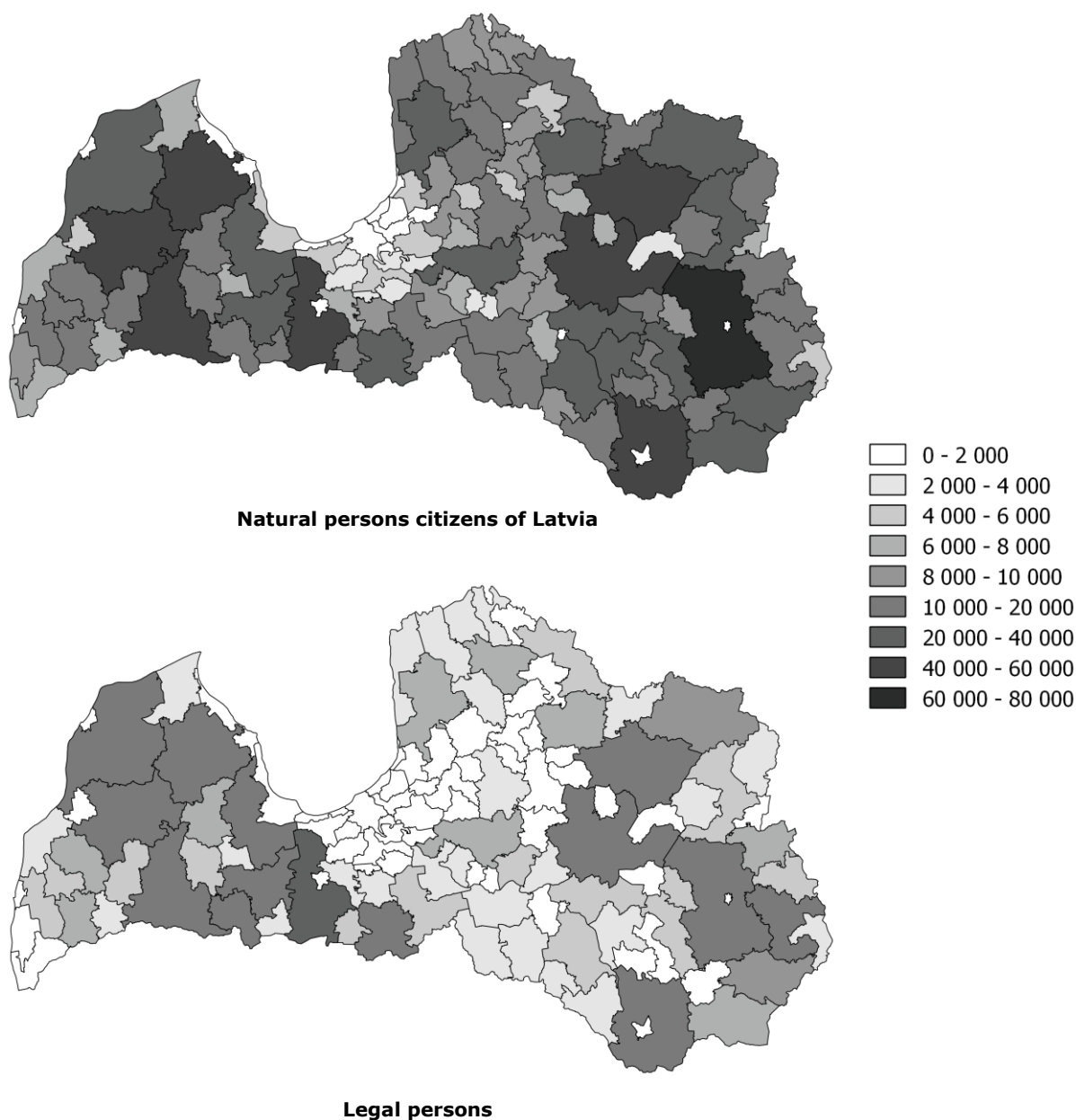
³Corresponding author E-mail address: Ilona.Beizitere@saeima.lv

⁴Corresponding author E-mail address: Inese.Grumolte-Lerhe@saeima.lv



Source: authors' calculations based on the research results

Fig. 1. Agricultural land ownership structure in Latvia as of 1 January 2017



Source: authors' calculations based on the research results

Fig. 2. Regional breakdown of agricultural land area (ha) owned by natural persons-citizens of Latvia and legal entities as of 1 January 2017

¹Corresponding author. E-mail address: visvaldis.valtenbergs@lu.lv

²Corresponding author E-mail address: Zanita.Avotniece@saeima.lv

³Corresponding author E-mail address: Ilona.Beizitere@saeima.lv

⁴Corresponding author E-mail address: Inese.Grumolte-Lerhe@saeima.lv

As of 1 January 2017, most of agricultural land across all regions of Latvia were owned by citizens of Latvia, but large areas of agricultural land, especially in Kurzeme and the Eastern part of Latvia, were owned by legal entities (Figure 2). Foreign citizens, non-citizens of Latvia and the stateless persons of Latvia owned rather small areas of agricultural land, that is, no more than 750 ha in one district, meaning that there is no pronounced regional concentration. At the same time, the total value of agricultural land, in terms of hectares of land owned by one entity in one region, does not determine the impact of the entity on agricultural activities and resource production in the region. For example, Riga has a rather small area of agricultural land, but most of it is owned by legal entities.

2. Agricultural land transactions in Latvia 2012-2016

In 2012-2016, there were 5 158 legal persons and 28 699 natural persons identified as unique buyers of agricultural land. It was established that several buyers had acted as a party to several transactions, just as several land properties had been sold and purchased on more than one occasion. Citizens of Latvia accounted for the majority of the agricultural land buyers, that is, 74 %. The second largest group of buyers – 19.3 % – were legal persons with domestic capital. Likewise, in terms of the number of transactions, citizens of Latvia were the most active market participants, accounting for 53 % of total agricultural land transactions and 53.7 % of purchases of all land properties containing agricultural land. Legal persons with domestic capital constituted 36.4 % of total transactions and 35.4 % agricultural land property purchases.

Table 2 summarises the agricultural land transactions 2012-2016 by categories of buyers and sellers. The percentage of the purchased agricultural land (of the total purchased agricultural land in that year) has diminished in all categories, except for purchases by legal persons with domestic capital, which gradually increased and reached 59.73 % in 2016. It must be noted that, in 2015, a considerable increase of transactions as percentage of total was observed among natural persons who are citizens of Latvia, reaching 58.07 %. The second largest group of buyers in terms of the number of transactions – legal persons with domestic capital – shows a slight decrease in activity since 2014.

General trends suggest that in the natural person market segment the total purchased agricultural land area has decreased since 2014. At the same time, in the small segments of foreign citizens and non-citizens of Latvia, both the number of buyers and number of agricultural land properties has also decreased since 2014. The relatively small percentage of buyers and transactions in the agricultural land market coupled with the small amount of the purchased agricultural land could indicate that the non-citizens of Latvia and foreign citizens are not buying agricultural land primarily for agricultural use. The results of the research confirm the conclusions of the State Land Service survey (SLS, 2016, 10) about the overall reduction of market activity by some 20–30 % since the coming into effect of the amendments to the Law in 2014.

A comparison of performance in the natural person and legal person market segments shows that legal persons with domestic capital dominated the purchase side of the market, and, accordingly, constitute the largest group of agricultural land buyers during the period in question. The second largest group – citizens of Latvia – has been quite active in terms of both the number of transactions and the number of the purchased agricultural land properties. However, it must be noted that the area of the purchased agricultural land was mainly small.

¹Corresponding author. E-mail address: visvaldis.valtenbergs@lu.lv

²Corresponding author E-mail address: Zanita.Avotniece@saeima.lv

³Corresponding author E-mail address: Ilona.Beizitere@saeima.lv

⁴Corresponding author E-mail address: Inese.Grumolte-Lerhe@saeima.lv

Table 2

Purchased and sold agricultural land areas and transactions by categories of buyers and sellers (% of total transactions) in Latvia over the period 2012-2016

Buyers and sellers by categories		2012	2013	2014	2015	2016
Purchased agricultural land as percentage of total transactions						
Natural persons	Citizens of Latvia	31.35	32.12	30.21	31.62	30.18
	Foreign citizens	0.16	0.20	0.61	0.80	0.50
	Non-citizens of Latvia	0.19	0.07	0.04	0.03	0.02
Legal persons	Domestic capital	52.56	54.08	54.95	57.34	59.73
	Foreign capital	15.74	13.54	14.19	10.21	9.57
Sold agricultural land as percentage of total transactions						
Natural persons	Citizens of Latvia	71.86	75.27	69.82	76.44	74.15
	Foreign citizens	1.21	1.45	1.17	0.80	0.83
	Non-citizens of Latvia	0.29	0.17	0.24	0.17	0.33
Legal persons	Domestic capital	18.37	15.46	19.58	17.11	17.58
	Foreign capital	8.27	7.64	9.19	5.49	7.11
Agricultural land purchasing transactions as percentage of total transactions						
Natural persons	Citizens of Latvia	48.37	51.09	51.11	58.07	57.42
	Foreign citizens	1.13	1.76	2.05	1.02	1.11
	Non-citizens of Latvia	1.42	1.16	1.04	0.67	0.48
Legal persons	Domestic capital	39.53	37.78	36.78	33.21	33.97
	Foreign capital	9.55	8.21	9.02	7.04	7.02
Agricultural land selling transactions as percentage of total transactions						
Natural persons	Citizens of Latvia	78.55	78.33	74.41	76.78	77.46
	Foreign citizens	1.06	1.30	1.19	1.12	1.29
	Non-citizens of Latvia	1.49	1.17	1.11	1.35	1.44
Legal persons	Domestic capital	14.96	14.98	16.41	15.70	14.54
	Foreign capital	3.93	4.22	6.88	5.05	5.27

Source: authors' calculations based on the research results

The selling side of the market was dominated by natural persons who are citizens of Latvia. They accounted for 81.7 % of all sold agricultural land, 77.1 % of transactions, 75.6 % of all land properties containing agricultural land, and 73.3 % of the total area of the sold agricultural land. It must be pointed out that, among the sellers, it was the legal persons with domestic capital that sold less agricultural land than they purchased.

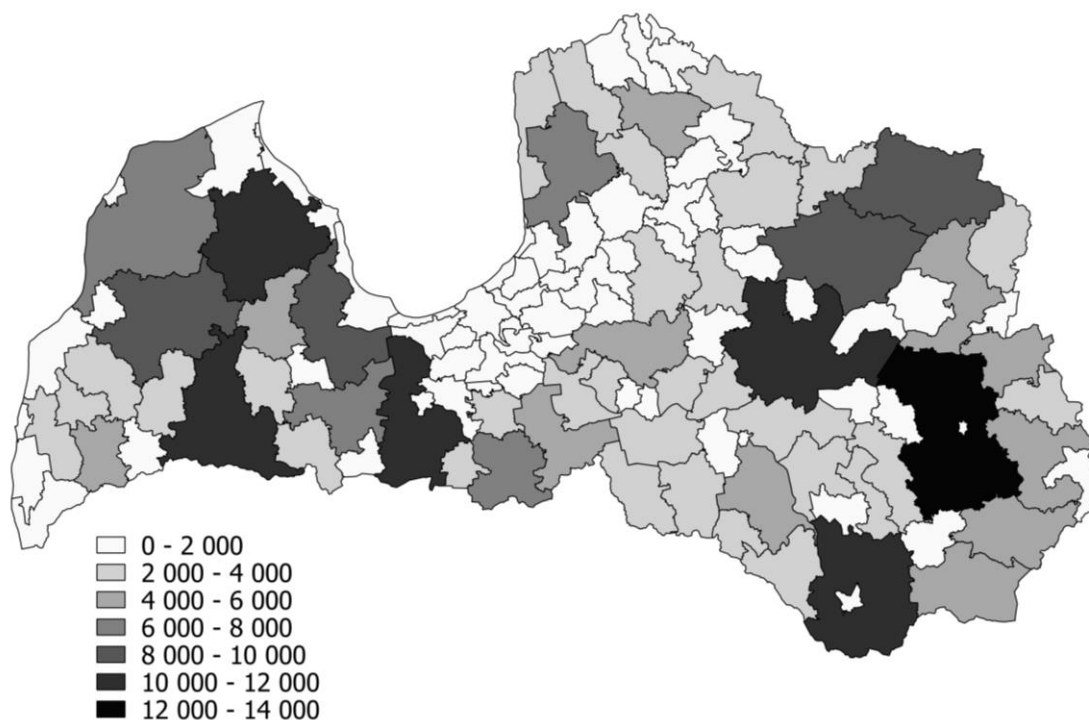
The most active regions of Latvia in terms of the number of agricultural land transactions during the time period in question were as follows: Rezekne, Daugavpils, Jelgava, Talsi, Madona, and Limbazi. In terms of the area of the purchased agricultural land, as well as in terms of the number of transactions, the leading regions are as follows: Rezekne, Daugavpils, Jelgava, Talsi, and Madona (Figure 3). It must be noted that in there are many instances of a single land property changing hands on several occasions. For instance, two agricultural land properties have been sold 10 and 11 times respectively during the time period in question.

¹Corresponding author. E-mail address: visvaldis.valtenbergs@lu.lv

²Corresponding author E-mail address: Zanita.Avothniece@saeima.lv

³Corresponding author E-mail address: Ilona.Beizitere@saeima.lv

⁴Corresponding author E-mail address: Inese.Grumbolte-Lerhe@saeima.lv



Source: authors' calculations based on the research results

Fig. 3. Regional breakdown of total purchased agricultural land area (ha) over the period 2012-2016 in Latvia

Conclusions

- 1) In the time period between 2012 and 2017, the agricultural land market has displayed signs of consolidation:
 - The dominance of legal persons in the agricultural land market has grown considerably in terms of both the owned area and the number of purchase transactions. Concerning the agricultural land ownership in 2017, it must be pointed out that a relatively small number of legal persons (3 %) own almost a quarter (23 %) of the available agricultural land.
 - At the same time, such natural entities as citizens of Latvia, non-citizens of Latvia, and the stateless persons of Latvia are not only losing the area and number of agricultural land plots, but are also decreasing in ownership numbers. The proportion of foreign citizens in terms of agricultural land ownership remains low. It applies also to the area of agricultural land, and the number of transactions.
- 2) Legal persons with domestic capital dominated the purchase side of the agricultural land market during the time period in question. The second largest group – citizens of Latvia – was quite active in terms of both the number of transactions and the number of purchased agricultural land properties; however, it must be noted that the area of the purchased agricultural land was mainly small. Also, legal persons with foreign capital have had a substantial impact on the agricultural land market.
- 3) An analysis of dynamics of the sales and purchases of agricultural land over the time period in question shows that natural persons citizens of Latvia sold much more property than they bought.

¹Corresponding author. E-mail address: visvaldis.valtenbergs@lu.lv

²Corresponding author E-mail address: Zanita.Avotniece@saeima.lv

³Corresponding author E-mail address: Ilona.Beizitere@saeima.lv

⁴Corresponding author E-mail address: Inese.Grumolte-Lerhe@saeima.lv

- 4) The agricultural land purchase restrictions adopted in 2014 have lowered the market activity in terms of sold land area and the number of transactions, the only exception being legal persons with domestic capital; the area of agricultural land purchased by them has steadily grown.
- 5) However, the research does not confirm the thesis that the agricultural land of Latvia is being sold off to foreign citizens, since their ownership in terms of land area and remains relatively low, and so does their involvement in agricultural land transactions.

Bibliography

1. Ciaian, P., Kanacs, d'Artis, Swinnen, J., Van Herck, K. and Vranken, L. (2012). *Sales Market Regulations for Agricultural Land in EU Member States and Candidate Countries*. Retrieved: <https://www.ceps.eu/publications/sales-market-regulations-agricultural-land-eu-member-states-and-candidate-countries> Access: 15.01.2018.
2. Constantin, C., Luminita, C., Vasile, A.J. (2017). *Land Grabbing: A Review of Extent and Possible Consequences in Romania*. *Land Use Policy*, Volume 62, pp. 143–150.
3. European Parliament Directorate General for Financial Stability, Financial Services and Capital Markets Union (DG FISMA) (2017). *The Regulation of Agricultural Land Sales Markets in the EU*. Discussion paper for the meeting to exchange views on the agricultural land sales markets.
4. Eurostat (2011). *Large Farm Statistics*. Retrieved: http://ec.europa.eu/eurostat/statistics-explained/index.php/Archive:Large_farm_statistics Access: 02.12.2017.
5. Food and Agriculture Organization of the United Nations (UN FAO) (2011). *The State of Food Insecurity in the World*. Retrieved: <http://www.fao.org/3/a-i4646e.pdf> Access: 20.12.2017.
6. Grumolte-Lerhe, I., Avotniece, Z., Beizitere, I., Valtenbergs, V. (2017). Lauksaimniecība izmantojamās zemes tirdzniecības ierobežojumi Eiropa un tirgus situācija Latvijā (*Trading Restrictions of Agricultural Land in Europe and the Situation in Agricultural Land Market in Latvia*). Retrieved: http://www.saeima.lv/petijumi/LIZ_tirdzniecibas_ierobeozumi_24102017.pdf Access 07.02.2018.
7. Haerlin, B., Fuchsloch, S. (2016). *Land Rush and the Sellout of Europe's Farmland*. Retrieved: <http://www.arc2020.eu/land-rush-land-grab/> Access 20.12.2017.
8. Kay, S., Peuch, J., Franco, J. (2015). *Extent of Farmland Grabbing in the EU*. Retrieved: [http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540369/IPOL_STU\(2015\)540369_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540369/IPOL_STU(2015)540369_EN.pdf) Access 13.01.2018.
9. Law On Land Privatization in Rural Areas, *Republic of Latvia*, 09.07.1992. Retrieved: <https://likumi.lv/ta/en/id/74241-on-land-privatisation-in-rural-areas> Access: 08.02.2018.
10. Swinnen, J., Van Herck, K., Vranken, L. (2016). The Diversity of Land Markets and Regulations in Europe, and (Some of) Its Causes. *The Journal of Development Studies*, Volume 52, Issue 2, pp. 186–205.
11. The State Land Service (SLS). (2016). Nekustama īpašuma tirgus pārskats. Lauku zemes tirgus tendences pēc 2014. gada regulējuma izmaiņām. (*Real Estate Market Overview. Trends in Agricultural Land Market Following the Amendments of Regulation in 2014*). Retrieved: http://www.vzd.gov.lv/files/nekustama_ipasuma_tirgus_parskats_22_12_2016.pdf Access: 13.01.2018.
12. Transnational Institute (TNI) (2016). *Land Grabbing and Land Concentration in Europe*. A Research Brief. Retrieved: https://www.tni.org/files/publication-downloads/landgrabbingeurope_a5-2.pdf Access: 15.01.2018.

¹Corresponding author. E-mail address: visvaldis.valtenbergs@lu.lv

²Corresponding author E-mail address: Zanita.Avotniece@saeima.lv

³Corresponding author E-mail address: Ilona.Beizitere@saeima.lv

⁴Corresponding author E-mail address: Inese.Grumolte-Lerhe@saeima.lv

LANDSCAPE PLANNING AS AN ASSET FOR REGIONAL DEVELOPMENT IN LATVIA

Margarita Volosina, Msc. Spatial Planning; **Anita Zarina**, Dr.geogr., Docent;
Olgerts Nikodemus, Dr.geogr., Professor; **Ivo Vinogradovs**, Msc.geogr., Researcher
University of Latvia, Faculty of Geography and Earth Sciences

Abstract. In Latvia sustainable development strategies of all five planning regions acknowledges landscape planning as an asset for regional sustainability. Moreover, there are now various frameworks that can promote landscape planning, the most important of them are the National Landscape Policy and the thematic plan framework. Therefore, landscape aspects in territorial planning from a mere landscape description as part of territorial characterization have shifted into more integrative and functional part of territorial planning process. Yet, landscape planning is still a marginal activity in Latvia. This paper aims to analyse and expand challenging issues around the elaboration of landscape plans as part of territorial planning processes in Latvia through legislative framework and planning analysis. We reviewed the three most recent landscape planning cases, discussing different planning situations in the context of European Landscape Convention and territorial planning in Latvia. Three planning situations are distinguished: landscape thematic plan as a policy and landscape assessment document, landscape thematic plan as an assessment and the recommendation document, and landscape assessment as part of territorial plan. All three approaches show integrity with territorial planning and reveal the benefits for sustainable territorial planning and regional development, however they still lack the locals' participation aspects, as well as the focus on ordinary landscapes, social capital and land economics.

Key words: landscape planning, territorial planning, thematic plans, regional development.

JEL code: Q01, Q56, O21

Introduction

The European Landscape Convention (ELC) (Council of Europe, 2000), ratified in Latvia a decade ago, recognises landscapes as a key element of individual and joint well-being and highlights three main actions to be taken towards sustainable landscapes - protection, management and planning. However, to compare with western European countries, where landscape planning has long traditions (Sala P. et. al, 2014) and nowadays is an important component of spatial planning, and of particular interest to policy makers as economic values of landscapes can be estimated (Tagliafierro C. et al, 2013) through the approach of ecosystem services, Latvia still lacks national methodological guidelines, as well as interest from planners, municipal and regional authorities. However, there are now various frameworks that can promote landscape planning: the Landscape Policy Guidelines (LPG) (Vides aizsardzības un ..., 2013), few methodological guidelines for landscape planning at local scale (Vides aizsardzības un ... 2000, Dabas aizsardzības parvalde, 2014), but most importantly, thematic plan framework (Saeima, 2011a) that legitimizes a direct link between landscape planning, territorial planning and sustainable development. Furthermore, although regional sustainable development strategies encourage municipalities to consider the landscapes as broader socio-economical human empowerment (Vides aizsardzības un ..., 2017), landscape planning is still a marginal activity in Latvia. This paper aims to analyse and expand challenging issues around the elaboration of landscape plans as part of territorial planning processes in Latvia. To do so (1) landscape planning in Latvia was overviewed in the context of ELC and territorial planning, (2) three recent rural landscape plans were reviewed, (3) the main findings were discussed and, in conclusion, the necessity for elaboration of methodological guidelines for landscape planning is substantiated. Regarding the first two tasks, literature, qualitative content analysis of planning documents,

¹ corresponding author E-mail address: vo.margarita@gmail.com

interviews with territorial planners and landscape experts were conducted. For the reviewing of the landscape plans, methodological framework of La Riccia (La Riccia L., 2017) was used.

The landscape planning practice in Latvia within the framework of ELC

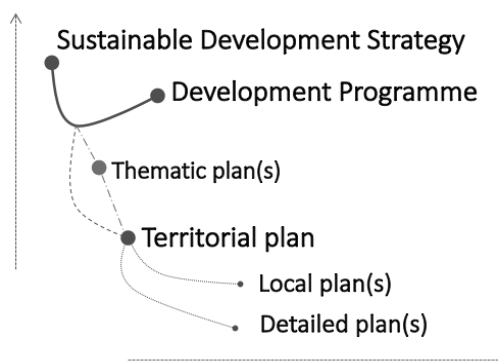
Latvia, by full ratification of European Landscape Convention in 2007, joined growing European recognition of landscapes being everywhere and holding the meanings and values, whenever being superior or mundane. The Landscape Policy Guidelines, which followed ratification of the ELC, defined major problematic aspects related to landscape planning and management, as well as gave possible solutions in both the regulatory framework and legislation, and in education and practical actions (Vides aizsardzības un ..., 2013). Furthermore, the LPG attempts to bring together various institutions that hold mandates related to landscape management, planning or protection due to their sectoral or thematic relevance: e.g., the Ministry of Culture is responsible for historical and cultural monuments (Nitavska N., Zigmunde D., 2017).

According to the LPG, the municipal level faces the primary challenges of legislative and mandatory overlaps and inflexibility resulting in contradictions and conflicts. As in many countries (Voghera A., 2011, Sala P. et al., 2014), spatial planning in relation to the development of landscapes is an outright framework for identification of conflicts and frictions of various interests as well as their subsequent balancing through deliberative processes. Hence, the LPG emphasises that assessment, evaluation and general landscape planning must be performed prior and in close relation to territorial planning.

Also, the Sustainable Development Strategy of Latvia (Saeima, 2011b), as a reasonable solution for acknowledged tendencies and challenges of environmental changes, emphasizes the development of thematic planning, including landscape planning as part of the territorial planning process.

Landscape and territorial planning framework

Lately, there has been a shift of the landscape agenda in territorial planning in Latvia – from a mere landscape description as part of a territorial characterization to more integrative and functional part of territorial planning process. One of the key reasons for that is the recently amended Spatial Development Planning Law (Saeima, 2011a), which through a framework of thematic plans enables municipalities to develop specific planning documents for solving specific issues according to the planning level.



Source: author's elaboration

Fig. 1. Interrelation (hierarchy, sequence and sequence options) of development documents at the municipal level

So far, less than ten of 119 Latvia's local municipalities (including the City of Riga) have elaborated landscape thematic plans (LTP) (Vides aizsardzības un ..., 2017). Although thematic plan is not a binding document *per se*, it potentially can have an impact on territorial plans and building regulations (Figure 1). Furthermore, the General Regulations for the Planning, Use and Building of the Territory (Cabinet of Ministers, 2013) specifies that local authorities, through the prior and expert lead assessment procedures, might determine valuable landscape areas as areas with special and binding conditions. However, local municipalities rarely employ such options.

Yet, even non-binding landscape thematic plans would mean at least holistic territorial assessment and identification of landscapes, as well as definition of landscape quality objectives (LQO). While various place-bound solutions for the development of specific landscapes can be legitimised later through territorial plans (and building regulations) or local plans (Figure 1). The framework of local plans is suitable for landscape evaluation, when proposed or anticipated landscape changes (e.g., in functional character that might affect the wellbeing and movement of people) are about to take place. Landscape evaluation within a local plan could entail a detailed scope of judgements and estimations about values within the landscapes, impact of potential changes and their compliance with LQO.

Research results and discussion

Three different cases (including maps, see Figure 2) of local landscape planning practice in Latvia were analysed basing on three perspectives (La Riccia L., 2017): (1) *the reason of the plan* focuses on the objectives of the plan in context of the territorial planning and outlines the basic features of the planning instruments. It includes the analysis of the methods, the tools and the techniques used; (2) *the interpretation of the landscape* aims at understanding the conceptual framework of landscape analysis in the plans; (3) *the actions towards the landscape* focuses on the analysis of the recommendations proposed in the planning documents.

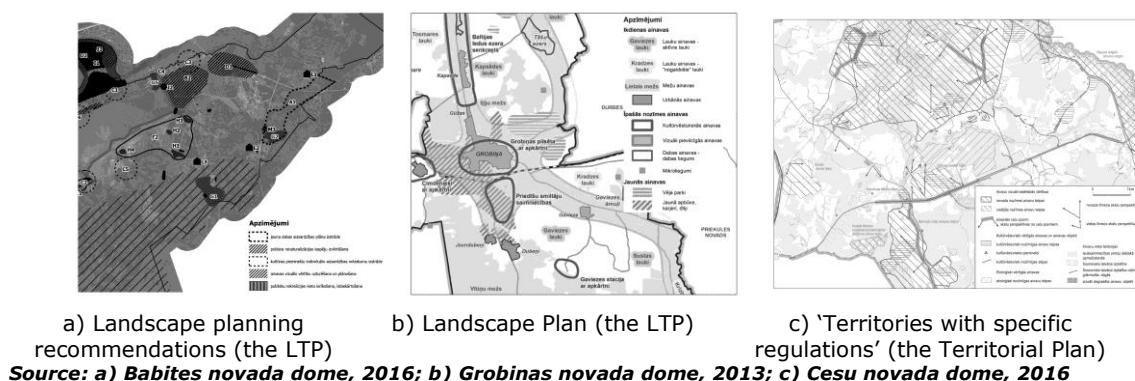


Fig. 2. The fragments of the landscape plans

Landscape thematic plan of Babite municipality

Reason of the plan. Babite municipality is a territory neighbouring Riga and in the last decades it has become a hotspot for various rapid developments – mainly due to the suburbanization processes that have resulted in population growth, land use transformation and housing developments. Until now, development processes were occurring rather incoherently, in lines with the liberal politics and market values, that is, in most cases without the territorial and landscape contexts, which has led to accumulation of conflict issues between various stakeholders. Thus, it was important to direct the developments of the territory in a more coherent way through the

thematic planning that implied the in-depth analysis of current situation. Along with the landscape plan (Babites novada dome, 2016), thematic plans for settlement and public space, amelioration and infrastructures were carried out as a subsequent basis for the new territorial plan (elaboration started in the end of 2016).

The main objectives of the LTP were to identify the main landscape units and to define their characteristic elements, as well as to identify valuable places and territories that have a potential for tourism and recreational development. The main tasks also included the mapping and characterization of protected areas and historical monuments, and the analysis of accessibility to public waters. Identification and assessment of the landscapes was performed by a group of landscape experts, without locals' involvement, except for the official consultations of the public in the final phase of the planning process. The main methods used included the identification and mapping of landscape features based on field surveys, expert interviews (also collaboration between experts of other thematic plans) and various analyses of documents.

The interpretation of the landscape. The landscape was conceptualized along with the framework of ELC, putting the emphasis on the characterization of landscape units identified as unique landscapes and as landscape types. Each of the landscape units were characterized by its social function and location, historical development, current landscape processes, values and important elements and conflicting areas and risks. Landscape values and risk areas were identified from historical, scenic and ecological perspectives. In addition, the landscape transformation processes were also analysed (Figure 2, a).

The actions towards the landscape. The recommendations that were proposed and explicitly described by the LTP experts were directly related to assessed situations and implied specific immediate tasks, as well as recommendations for further landscape assessments. Clearly, such recommendations represent the expert view on various values, landscape change processes, neglected places and landscapes, conflict areas (especially in relation to housing developments and nature protection interests). The plan also emphasizes the need for elaboration of LQO for each of the identified landscape units, through the involvement of locals, as a further task in the planning process of the landscape.

Landscape thematic plan of Grobina municipality

Reason for the plan. Grobina municipality represents the more or less typical rural landscape of Latvia with large field and forests patches and dispersed settlements with land use intensification processes, including wind farm landscape developments, around Grobina town.

The LTP for Grobina municipality (Grobina novads dome, 2013) was elaborated basing on the preceding project on municipalities' long-term development plan (2012), which implied the study of landscape history and the analysis of the spatial structure of landscapes. Along with the LTP (2014-2030), the territorial plan (2014-2025) and the long-term development strategy (2014-2030) were elaborated. In this case, the LTP is a local policy document that implies its implementation along with the long-term development strategy. The aims of this policy document are as follows: (1) to integrate the issues of landscape protection, planning and governance into larger frameworks of planning processes and strategies, (2) to strengthen the local landscapes' identity, (3) to create a landscape database, (4) to enhance heritage preservation and development of landscapes and (5) to elaborate a procedure for the implementation of the landscape plan.

Besides the policy aspects, the LTP contains the study of municipality's landscapes, which was carried out by a landscape expert, having the official public consultations according to the legislative order. The main methods used include the in-depth interpretation of landscape structure and processes, and mapping of the main landscape features, based on field surveys, analysis of documents and collaboration with territorial planners.

The interpretation of the landscape. Landscape interpretation here grounds the notion that a landscape is the result of ongoing human/nature interaction (ELC context), emphasizing the importance of history and the dynamic character of landscapes. It discusses territorial landscape units, the main use of the landscapes (as a result of human activities), scenic landscapes, risk areas, a settlement pattern and forest distribution. The synthesis of the analysis results in the Landscape Plan (Figure 2, b) wherein 'everyday landscapes' (rural, urban and forest areas), 'landscapes of special importance' (historic, scenic, nature protection areas) and 'new landscapes' (windfarms, new settlement areas) are identified.

The actions towards the landscape. As an essentially political document, the LTP for Grobina municipality is interwoven with conceptual explanations of further developments of landscapes and recommendations for further actions. It indicates that the most urgent action is the elaboration of local plans (or 'conceptual thematic plans' through the involvement of the locals) for the identified 'landscapes of special importance'. In the end, the particular tasks for the implementation of the Landscape Plan and its governance are listed: the need for coordination, a consultative committee, a popular science publication, binding regulations, a monitoring system, methodological recommendations, and events for public involvement.

Landscape plan of Cesis municipality

Reason of the plan. Cesis municipality, of which the largest part is the Gauja National Park, has high biodiversity and landscape values; therefore, it is listed among the most popular recreation destinations in Latvia. The elaboration of the landscape plan for the rural area of Cesis municipality has two stages. The first stage, as part of the municipality's territorial plan (2016-2026) (Cesu novads dome, 2016), aimed at defining landscape values and risks, the second is directed towards maintenance and preservation of assessed values and maintenance and elimination of detected risks. The second stage is part of the ongoing VivaGrass project (Integrated planning tool ..., 2018) that aims at enhancing landscape values through the ecosystem services (ES) approach, elaborated in the integrated planning tool – the VivaGrass Tool – the decision support system capable of analysing ES bundles, trade-offs and synergies, cold/hot spots for supply potential of the ES and deriving management prioritization, biomass potential and economic evaluation of agricultural practices and land-uses. In both stages, landscape assessment was done by experts, using various methods and techniques, among them the analysis of high-resolution remote sensing data with subsequent field verification. Local knowledge and opinions of inhabitants were collected through questionnaires' done by the local municipality and the public discussion round tables as part of the VivaGrass project.

The interpretation of the landscape. The landscape here is considered from perspectives of cultural heritage (historical settlements), aesthetical (mainly scenic views) and ecological (e.g., High Natural Value grasslands, ecological forests, nature micro-reserves and salmon spawn river valleys) values, as well as risks that include farmland abandonment, degraded sites and invasive distribution of Giant Hogweed species. All in all, it follows the context of ELC, particularly

from the perspectives of values, management, perceptions and preferences of locals, but the plan also implies landscape interpretations from the point of view of landscape ecology.

The actions towards the landscape. Since the Landscape Plan for Cesis municipality was an integral part of the territorial plan, and not a separate document, it has no specific recommendations for landscape management, preservation and governance. Except for the development programme, wherein actions toward the maintenance of scenic views are mentioned. However, the assessed landscape value areas in the territorial plan are legitimized as 'territories with specific regulations' that imply particular conditions for any further transformation of these areas (Figure 2, c). Whereas the outcomes of the second phase of the landscape planning process (VivaGrass project's framework) intend the elaboration of Landscape management plan through two decision support sub-systems – landscape maintenance (based on supply of aesthetical, recreational, historical and educational ES, and various risks) and hogweed elimination.

Imperatives, restraints and challenges for landscape planning

Landscape planning, as Antrop and Van Eetvelde (Antrop M., Van Eetvelde V., 2017) notes, "can only be done indirectly through spatial planning by those who possess the stimulating and regulating competencies". In Latvia, this conjunctive link, although without obligations, is now the thematic planning framework that opens a possibility to start territorial planning process at a landscape level thus emphasizing the important integrity of history, ecology, land economics etc. According to Selman (Selman P., 2006), that would mean planning for and through landscape. Yet, at large, landscape planning in Latvia, as the analysed cases show, is still subjected to the very particular landscape aspects (as in planning 'for landscape') defined by experts, such as historical, ecological and scenic values (often already acknowledged beforehand), that result in landscape plans focusing on 'landscapes of particular importance'. Certainly, these aspects are essential in landscape planning (usually they are the sole expectations from municipalities), but as the ELC recognizes landscapes that are also ordinary or ruined, it is necessary that the landscape quality assessment and planning should be carried out for the so-called everyday landscapes through stakeholders' involvement as well. Such a planning practice can only be possible if landscape plans (defined landscapes guidelines) could influence the multiple stakeholders that act upon the territory, touching the questions of social capital, local and regional economic developments. And apparently, the Cesis Landscape management plan could be one of the first examples of it in Latvia.

Conclusions

- 1) The case study analysis showed that there are at least three situations in planning a landscape in rapport with territorial planning. Firstly, there is the LTP as a policy document (Grobina case) that implies characterization of landscapes and guidelines for further actions; the second, LTP as a specific set of objectives that are aimed at solving particular demands of a municipality: hence, the example of LTP for Babīte, whose primary aim is to improve the opportunities for the recreational use through landscape analysis; and the third situation (Cesis case), which shows that some landscape related questions, e.g., the designation of valuable landscapes as 'territories with specific regulations', can be done without the elaboration of the LTP.
- 2) Assessment and sustainable planning of landscapes at municipal level is an important asset for sustainable regional development. The analyzed cases represent different situations where supra-local challenges (intensive suburbanization processes, the hogweed invasion, new

¹ corresponding author E-mail address: vo.margarita@gmail.com

landscapes of windfarms and marginalization processes) have specific local impacts and need place-bound objectives and measures in planning processes to contribute to the regional development.

- 3) Landscape planning practice in Latvia still lacks the participation of the local stakeholders, especially for defining landscape objectives and measures to achieve them.
- 4) The framework of thematic planning is indeed a necessary link that connects planning with landscape and legitimizes landscape planning as a potentially essential part of territorial planning. It is especially so, if the LTP, besides the landscape assessment and immediate recommendations, implies the policy aspects and serves as part of a programme for long-term territorial and regional development.
- 5) To facilitate the development of landscape planning in Latvia, methodological guidelines at local and regional level, which would consider the ELC context, Latvia's planning traditions and would comprise the best-case examples, would clearly state and explicate the benefits of the LTP for municipalities and regions, are necessary.

Bibliography

1. Antrop, M., Van Eetvelde V. (2017). Landscape Perspectives, The Holistic Nature of Landscape. Landscape Series 23, p. 446.
2. Babites novada dome (2016). Babites novada ainavu struktūras tematiska plānojums (Landscape Thematic Plan for Babite Municipality). Retrieved: <http://www.babite.lv/lv/par-babites-novada-ainavu-strukturas-tematiska-planojuma-apstiprinasanu/> Access: 01.02.2018.
3. Cabinet of Ministers (2013) General Regulations for the Planning, Use and Building of the Territory. Regulations Nr. 240 (30.04.2013.) Retrieved: <https://likumi.lv/ta/en/id/256866-general-regulations-for-the-planning-use-and-building-of-the-territory> Access: 01.02.2018.
4. Cēsu novada dome (2016). Cēsu novada teritorijas plānojuma 2016.-2026. gadam (Territorial Plan for Cēsis municipality (2016-2026)). Retrieved: <http://www.cesis.lv/lv/publiskie-dokumenti> Access: 01.02.2018.
5. Council of Europe (2000). European Landscape Convention. Retrieved: <http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm> Access: 01.02.2018.
6. Dabas aizsardzības pārvalde (2014). Vadlīnijas dabas aizsardzības plāna integresanai teritorijas plānojuma (Guidelines for Integration of Nature Protection Plan in Territorial Plan). Retrieved: https://www.daba.gov.lv/upload/File/DOC/Vadlinijas_DApI-integr-TApI.pdf Access: 01.02.2018.
7. Grobinas novada dome (2013). Grobinas novada Ainavu plāns 2014.-2030.gadam (Landscape Plan for Grobina Municipality (2014-2030)). Retrieved: http://www.grobinasnovads.lv/index.php?option=com_content&view=category&layout=blog&id=238&Itemid=280 Access: 01.02.2018
8. Integrated Planning Tool to Ensure Viability of Grasslands (LIFE Viva Grass) (2018). Retrieved: <https://vivagrass.eu> Access: 01.02.2018.
9. La Riccia, L. (2017). Landscape Planning at the Local Level. Springer International Publishing. p 176
10. Nitavska, N., Zigmunde, D. (2017). Legislative Framework for Landscape Planning in Latvia. IOP Conf. Ser.: Mater. Sci. Eng. 245. Retrieved: <http://iopscience.iop.org/article/10.1088/1757-899X/245/6/062033> Access: 01.02.2018.
11. Saeima (2011a) Spatial Development Planning Law. Retrieved: <https://likumi.lv/ta/en/id/238807-spatial-development-planning-law> Access: 01.02.2018.
12. Saeima (2011b). Sustainable Development Strategy of Latvia until 2030. Retrieved: http://www.varam.gov.lv/in_site/tools/download.php?file=files/text/dokumenti/pol_doc//LIAS_2030_parluka_en.pdf Accessed: 01.02.2018.
13. Sala, P., Puigbert, L., Bretcha, (Eds.) (2014). Landscape Planning at a Local Level in Europe. Olot: Landscape Observatory of Catalonia; Government of Andorra, p 128
14. Selman, P. (2006). Planning at the Landscape Scale. London, Routledge
15. Tagliaferro, C., Longo, A., Van Eetvelde, V., Antrop, M., Hutchinson, W.G. (2013). Landscape Economic Valuation By Integrating Landscape Ecology Into Landscape Economics. Environmental science & policy 32, p 26-36
16. Vides aizsardzības un reģionālās attīstības ministrija (2000). Ainavu aizsardzība (Landscape Protection), Rīga, p. 92.
17. Vides aizsardzības un reģionālās attīstības ministrija (2013). Ainavu politikas pamatnostādnes 2013.-2019.gadam (Landscape Policy Guidelines 2013-2019). Retrieved: http://www.varam.gov.lv/lat/lidzd/sab_aps/?doc=15713 Access: 01.02.2018.

18. Vides aizsardzības un reģionālās attīstības ministrija (2017). Pārskats par ainavu plānošanas aspektiem pilsvaldībās (Overview of Landscape Planning Aspects in Municipalities). Retrieved: http://www.varam.gov.lv/lat/darbibas_veidi/tap/ain_pol/?doc=12902 Access: 01.02.2018.
19. Voghera, A. (2011). After the European Landscape Convention. Policies, Plans and Evaluation. Alinea Editrice, p. 129.

MULTIDIMENSIONAL COMPARATIVE ANALYSIS OF SOCIO-ECONOMIC DEVELOPMENT OF RURAL AREAS OF THE MASOVIAN PROVINCE IN YEARS 2004-2016

Mariola Chrzanowska Dr. oec., **Monika Zielinska-Sitkiewicz** Dr. oec.,
Warsaw University of Life Sciences

Abstract. Mazowieckie province is a unique area of Poland. It is characterised by large interregional differences in its internal structure. This is an interesting research area that requires the analysis of socio-economic development in this region to be conducted in a multidimensional way.

The aim of this study is to analyse and evaluate the spatial differentiation of the level of socio-economic development of rural areas in Mazowieckie province. Iterative method for linear ordering (modified taxonomic measure of development) was used to determine the level of socio-economic development. Analyses showed the growing developmental differences between the wealthy areas or the areas getting wealthier and poor areas. The best territorial units (top of the ranking) are located in the Warsaw Metropolitan Area, which is the largest pole of economic growth not only in the Masovian province, but also in the whole country. The second category of municipalities with the highest level of development are the municipalities located along the main routes to the capital. On the other hand, municipalities with the lowest level of development are mainly peripheral regions without good communication with the capital.

Key words: socio-economic development, rural areas, synthetic measure, Mazovian province.

JEL code: R11, O47, C49

Introduction

The socio-economic development plays an important role in the economics and economic policy of a given country, region or territorial unit. This is an extremely complex term. It is considered in eight mutually interpenetrating aspects: social, economic, technical, technological, spatial, natural, aesthetic and time (Bobrowska, Piasecka, 2005). The social development means a continuous growth of variables that are relevant to a given community. Economic development, on the other hand, concerns the increase in production, employment, investment and other values that characterize the economy quantitatively. The technical aspect includes the development of technology. This term is understood as the use of pioneer, improved machines, devices and tools in the production process. Technology development is related to this area, which is associated with the implementation of new production methods. On the other hand, spatial development is responsible for well-thought-out and diversified land development. The development of nature involves the identification of facilities and areas in need of protection. In terms of aesthetics, the idea is that the development of a given area would not only be nice, but also acceptable for everyone. Time is important in socio-economic development – long-term development is desirable, not just temporary growth. As a consequence, the study of socio-economic development is a subject to a number of studies and analyses (Wojewodzka-Wiewiorska, Dudek 2016; Drejerska, Braja 2014).

The processes of socio-economic development do not occur evenly and can only be observed in a strictly defined space. Contemporary determinants of regional development are characterized by clear differences in the level of socio-economic development in individual units (Pylak, Wojnicka-Sycz 2016). In this context, it is worth mentioning one of the basic theories of regional development – core-periphery theory. The concept proposed in 1967 by J. Friedmann (A general theory of polarized development) helps recognize the correctness of the functioning of growth areas and economic strategy. It is based on the concepts of the core and periphery and the relations between these areas. The core is the area in which the production and service activities of

the most competitive enterprises are located. These are mostly the central areas that dominate the surroundings. Therefore, the development of peripheries takes place as a result of the impact of the cores. This process is subordinate and consequently strengthens the domination of the fundamental centre. Core areas have great development potential and high ability to generate innovations. Their development is based on diversified effects:

- domination – taking development factors from peripheries to the core,
- information – concentration of high quality human capital and a society conducive to innovation in the core,
- feedback – some innovations evoke another,
- monopoly – a privileged position on the market and an increase in revenues thanks to the use of productive innovations (Churski 2011).

The peripheries are determined based on their connections to the core. These are areas of recession or slow development, showing significant dependence on the area of growth. However, the core-periphery division is not enough, which is why four classes of areas are distinguished:

- metropolitan areas – cores,
- development axes – band zones formed along main communication lines connecting cores,
- borderland regions – areas with diverse socio-economic situation, showing development capabilities,
- dilapidated regions – peripheries characterized by recession and population decline.

The first two of the four groups can be included in the areas of economic development. Borderland regions are areas of stagnation that have a chance to grow and in the future to join growth areas, they are called ascending peripheries. Dilapidated regions are areas of economic stagnation, subordinate in terms of development and exploited by areas of growth. They can be called descending peripheries. The areas of growth affect areas of economic stagnation through:

- the creation of market, administrative and economic dependency,
- modelling of ranking relationships, of a horizontal and vertical nature, affecting the hierarchy of the entire settlement system,
- formation of innovative impulses, which degree of reception through areas of economic stagnation depends on their innovation rate,
- strengthening the independence of areas of economic stagnation, which may lead to conflicts in relations with the area of growth,
- shaping the exchange of persons, goods and information that may lead to expansion of areas of growth and inclusion of areas of economic stagnation in their range.

The market mechanism should strive to strengthen areas of growth. At the same time, it must also affect the areas of economic stagnation, so as to increase the share of peripheries ascending in their internal structure, and to limit the contribution of the descending peripheries. The concept of cores and peripheries is distinguished by the strengthening of growth areas of various hierarchical levels in the economic area and the creation of functional relations between these areas, and the areas of economic stagnation. It is necessary for creating conditions for the spread of experience and capital from the areas of growth to areas of economic stagnation.

The Masovian province represents an area very well illustrating the core-periphery theory. There is a large economic diversification. Agriculture dominates mainly outside the Warsaw Metropolitan Area: vegetable and fruit growing, poultry and cattle breeding. There are also specialized areas of agricultural and food production, e.g. the pepper plantations are mainly in municipalities: Potworow

and Przytyk. According to the Development Strategy of the Masovian province (2013) - the largest number of entities in the Masovian province in 2011 was engaged in trade and transport – 229 thousand. Other industries in which there are numerous representatives include construction, finance, technical and culture-related services. There is also a representative of the petrochemical industry – PKN Orlen based in Plock. Masovia is also dominant in research and development, e.g. in 2011, there were 41 entities in the field of biotechnology (25.6 % of the total number of such units in Poland) (Development Strategy..., 2013).

The Masovian province is a region that is very well developed economically and socially. However, it is struggling with large interregional differences in the internal structure. The concentration of enterprises in Warsaw or its vicinity affects the worse development of regions located away from the Warsaw agglomeration. Problems with health care and environmental protection adversely affect the residents' living conditions. In turn, extensive cultural facilities fill the demand of residents for recreation. Thus, Masovia is an interesting research area that requires that the analysis of development in this region be carried out in a multidimensional manner.

The aim of the paper is to determine the level of rural areas development in the Masovian voivodeship in 2004 and 2016 using the methods of multidimensional comparative analysis (modified version of the synthetic Hellwig TMD development measure).

The following research questions were formulated in the paper:

- in which socio-economic condition are rural areas in Masovian voivodeship?
- what kind of objects represent rural areas in Mazowieckie province according to the core periphery theory?
- what affects the high or low level of socio-economic development?

The presented results have a cognitive value, but they can also be an inspiration for regional and local authorities to use multidimensional methods, e.g. in the socio-economic diagnosis of a given territory or to assess the effects of the development policy. The most significant limitation of the study that can be identified results from a fact that the research outputs cannot be directly compared with other studies as an expert own criteria of selection of variables were applied. These selection criteria are consistent with the theoretical background so general trends and conclusions of this study can be compared with other research but not a place of a single municipality in a ranking when other rankings can use different criteria. Also a lack of relevant data on the local level is a significant limitation of such kind of analysis.

Description of methods

Linear ordering is one of methods that involves ranking objects according to one feature. In other words, the method allows to number objects from 1 to n. The objects are ranked according to a certain criterion – usually from "the best (1) to the worst (n)". Taxonomic measures of development are applied in benchmarking and linear ordering of socio-economic objects. The research of taxonomic methods in Poland was initiated by Z. Hellwig, who in 1968 used the taxonomic measure for benchmarking the development of selected countries (Hellwig 1968). The construction of Taxonomic Measure of Development (*TMD*) is general, so there are no contraindications against using it in comparative analysis and linear ordering of various social (or socio-economic) phenomena. The basis of this method is to build a theoretical model of development.

The classical *TMD* algorithm is as follows:

- standardizing the character of variables. by transforming all of them into stimulants¹;
- normalization of diagnostic variables using formula (1)

$$z_{ij} = \frac{x_{ij} - \bar{x}_j}{s_j} \quad (1)$$

where \bar{x}_j the arithmetic mean of variable X_j , s_j the standard deviation of variable X_j

- pattern construction – an object that has the best (highest) values of diagnostic variables (see formula (2))

$$z_{0j} = \max_i \{z_{ij}\} \quad (2)$$

where z_{ij} –normalized values observed in the whole set of data;

- determining the distance (d_i) of each object from the pattern.

$$d_i = \sqrt{\frac{1}{m} \sum_{j=1}^m (z_{ij} - z_{0j})^2} \quad (3)$$

- Normalization of the measure is carried out using the following formula:

$$TMD_i = 1 - \frac{d_i}{d_0} \quad (4)$$

Where: $d_0 = \bar{d} + s_d$

Higher TMD indicates a higher level of the phenomenon studied. In order to take into account different levels of impact of individual diagnostic variables on the studied phenomenon, weight is introduced in the process of constructing the synthetic measure of development.

The method proposed by Hellwig is not resistant to the occurrence of untypical observations, i.e., those which statistical sizes differ significantly from the others. That is why Markowska and Sokolowski (Sokolowski, Markowska 2017) proposed a modification of this method. To avoid the influence of the outlying observation on the order of other objects, $n-1$ rankings are built. After building the first one, the best element is removed from the analysed set, and the remaining ones are used to build another ranking. The procedure is repeated $n-1$ times. The resulting ranking is stable and immune to outliers.

The study presented in the paper was divided into two parts. In the first part of the analysis, the ranking of municipalities in 2004 and 2016 was created using the modified TMR measure. In the second stage, basis on first iteration three groups of municipalities were identified:

- group 3. with the lowest degree of development

$$m_i < \bar{m} - s_M \quad (5)$$

- group 2. with the medium degree of development

$$\bar{m} - s_M \leq m_i \leq \bar{m} + s_M \quad (6)$$

- group 1. with the highest degree of development

$$m_i > \bar{m} + s_M \quad (7)$$

¹Stimulants (*S*): an increase in their value causes an increase in the level of the phenomenon; destimulants (*D*): an increase in their value causes a decrease in the level of the phenomenon; nominants: a specific value (*N*) indicates the highest level of the phenomenon;

It is impossible to divide final ranking in proposed way. Due to different pattern for each iteration TMR values are incomparable.

Research results and discussion

The paper presents the proposal to apply the selected method of linear ordering for analysing the development level of rural areas of the Masovian province. Information about municipalities was obtained from the Local Data Bank of the Central Statistical Office of Poland. The selection of variables was carried out in terms of their relevance to social infrastructure, selected aspects of the economic situation, demographic research, and technical infrastructure. It was also largely determined by the availability of data at the municipal level in the selected years. The study was conducted for data obtained from the Local Data Bank for 2004 and 2016.

As a result, the following information was used for the analysis:

- expenditure per capita in Section 801 - Education and upbringing,
- expenditure per capita in Section 93 Culture and protection of the national heritage,
- demographic load (people of the post-working age per 100 people at the working age),
- percentage of children aged 3-5 covered by the pre-school education,
- share of the registered unemployed in the working-age population,
- number of natural persons conducting a business activity per 1000 inhabitants (private sector),
- number of commercial companies per 1000 inhabitants (private sector),
- number of foundations, associations and social organizations per 10 000 inhabitants,
- number of flats completed for use per 10 000 inhabitants,
- using the installation in % of the total population – water supply,
- using the installation in % of the total population - sewerage.

Table 1 presents the ranking of top 10 municipalities of the Masovian province in 2004 and 2016. In 2004, Lesznowola was the leader of the ranking, and Nadarzyn in 2016. The next places in the ranking are occupied, respectively, by Michalowice and Bialobrzegi (in 2004) and by Michalowice and Izabelin (in 2016).

Table 1

Ranking of the best municipalities separated by means of a modified TMD measure in 2004 and 2016

2004		2016	
position	commune	position	commune
1	Lesznowola	1	Nadarzyn
2	Michalowice	2	Izabelin
3	Bialobrzegi	3	Michalowice
4	Raszyn	4	Lesznowola
5	Rozan	5	Zeleschow
6	Grodzisk Mazowiecki	6	Blonie
7	Nadarzyn	7	Ozarow Mazowiecki
8	Grojec	8	Raszyn
9	Mszczonow	9	Slupno
10	Konstancin-Jeziorna	10	Konstancin-Jeziorna

Source: author's calculation

Table 2 lists the municipalities, which in the analysed years obtained the worst rating. In both analysed periods, the only peripheral municipalities can be observed. Only the municipality of

Strachowka is located close to Warsaw. All of the worst objects are characterised by lack of sewerage and water supply installation and lowest value of rest of characteristics.

Table 2

Ranking of the worst municipalities separated by means of a modified TMD measure in 2004 and 2016

2004		2016	
position	commune	position	commune
1	Wolanow	1	Solec nad Wisla
2	Chotcza	2	Chotcza
3	Rosciszewo	3	Czerwonka
4	Czarnia	4	Sierpc
5	Nur	5	Dzierzgowo
6	Strachowka	6	Ceranow
7	Stoczek	7	Korczew
8	Przylek	8	Raciaz
9	Trojanow	9	Radzanow
10	Jednorozec	10	Przylek

Source: author's calculation

The spatial distribution of municipalities with low, medium and high levels of development is shown in Figure 1. One can note a clear influence of Warsaw on the dynamic development of neighbouring municipalities. In addition, it is worth noting that the Warsaw Metropolitan Area is indicated as the largest pole of economic growth not only in the Masovian voivodeship, but also in the whole country (Dziemianowicz et al., 2014). Role of Warsaw Metropolitan Area was analysed and underlined by other Authors (Pomianek 2017; Stanny 2012; Chrzanowska M. Zielińska-Sitkiewicz M., 2017). Municipalities with the lowest level of development are mainly peripheral ones without good communication and with the capital. These problems can be observed in whole Poland and also underlined by other Authors (Rosner 2010; Bański, Czapiewski 2008).

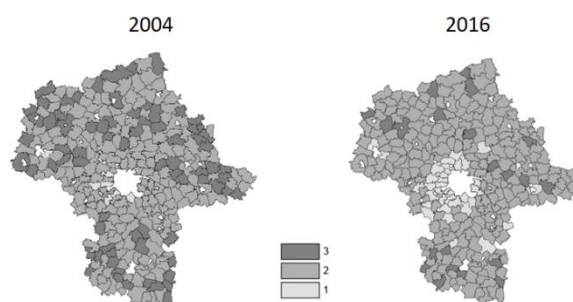


Fig. 1. Division of municipalities created using classical TMD measure in 2004 and 2016

Conclusions

The last several years are characterized by dynamic social and economic development of the country. However, it is accompanied by the processes of spatial polarization.

The following answers for research questions can be formulated.

- Spatial polarization of development process across investigated municipalities can be observed in the analysed period. It means that we can find both wealthy areas developing due to utilization of their potential and good market condition as well as less developed areas (problem areas) which for various reasons remain economically stagnant.
- Spatial diversification of rural development in Mazovian province explains the order of centre-periphery axis. Areas with a higher level of socio-economic development (municipalities with the

highest values of the presented measures of linear ordering) are a part of the Warsaw Metropolitan Area (WMA). The second category of municipalities with the highest level of development are the municipalities located along the main routes to the capital. They are the development axes and their high level of development is a consequence of their excellent location.

- According to core periphery theory, one can classify second group of rural areas as borderland regions. There are areas with diverse socio-economic situation and we cannot determine their coherent conditions and descriptions. The municipalities belonging to the third group, are typical dilapidated regions characterized by the lowest socio and economic indicators.
- Looking deeper into causes of such grouping, one can notice that rural areas which belong to third group are characterised by a lack of water supply and sewerage systems, although it can be understandable in a situation of a low population density, a low number of number of commercial companies and number of commercial companies. On the other hand, the best rural areas are characterised by high level of all stimulants.

Bibliography

1. Banski, J., Czapiewski, K.L. (2008), Ekspertyza. Identyfikacja i ocena czynników sukcesu społeczno-gospodarczego na obszarach wiejskich. (Expertise. Identification and Evaluation of Socioeconomic Success Factors in Rural Areas), Instytut Geografii i Przestrzennego Zagospodarowania, Warsaw.
2. Bobrowska A., Piasecka A. (2005), The Socio-economic Situation of the Region and Unemployment on the Example of the Province Opole. In "Competitiveness of the labour market and its entities", ed. D. Kopycinska, Szczecin.
3. Chrzanowska, M., Zielińska-Sitkiewicz, M. (2017) Evaluation of Spatial Differentiation of Socio-Economic Development of Rural Mazowieckie province in years 2004-2016, Proceedings of RURAL DEVELOPMENT 2017: Bioeconomy Challenges pp. 944-948.
4. Churski P. , (2011) Obszary wzrostu i obszary stagnacji gospodarczej w Polsce - kontekst teoretyczny (Areas of Growth and Areas of Economic Stagnation in Poland - Theoretical Context). In "Zroznicowania regionalne w Polsce" Biuletyn KPZK PAN, ed. Churski, P. , Notebook 248, Warsaw 2011, pp. 9- 12.
5. Drejerska, N., Braja, M., (2014) Local Self-Governments as Actors in Local Development - a Perspective of Inhabitants of the Warsaw Suburban Area. Agrarian Perspectives XXIII.: the Community-led Rural Development. Proceedings of the 23th international scientific conference. Prague, Czech Republic, pp. 271-277.
6. Dziemianowicz, W., Mackiewicz, M., Szmigiel-Rawska, K. (2014): Diagnoza obszaru metropolitalnego Warszawy. Raport syntetyczny (Diagnosis of the Metropolitan Area of Warsaw. Synthetic report). Geoprofit, Ecorys, Warsaw.
7. Hellwig, Z. (1968) Zastosowanie metody taksonomicznej do typologicznego podziału krajów ze względu na poziom rozwoju oraz zasoby i strukturę wykwalifikowanych kadr (Use of Taxonomic Method for the Typological Division of Countries Based on Their Level of Development and the Resources and Rstructure of Qualified Personnel). *Statistical Review* 15.4.
8. Pomianek, I., (2017) Socio-economic Development in Poland. Warsaw Metropolitan Area and the Rest of Mazowieckie Voivodeship. In "Rural development and entrepreneurship: bioeconomy production and co-operation in agriculture". Proceedings of the International Scientific Conference. Jelgava, pp. 153-160.
9. Pylak, K., Wojnicka-Sycz, E. (2016) Transforming Innovation Models to Change the Development Paths of Less-Developed Regions. *Procedia Engineering*, Volume 161 (2016), pp. 2179-2183.
10. Rosner, A. (2010) Zroznicowanie przestrzenne rozwoju społeczno-gospodarczego polskiej wsi i tendencje jego zmian. (Spatial Diversification of the Social and Economic Development of the Polish Countryside and Tends of its Changes) Kancelaria Senatu, Biuro Analiz i Dokumentacji. Warszawa 2010.
11. Sokolowski, A., Markowska, M. (2017) Iterative method for linear ordering of multidimensional objects. *Statistical Review* LXIV No2 pp. 153-162.
12. Stanny, M. (2012) Poziom rozwoju społeczno-gospodarczego obszarów wiejskich w Polsce – pomiar zjawiska złożonego (The Level of Socio-economic Development of Rural Areas in Poland - Measurement of a Complex Phenomenon). In "Rozwój wsi i rolnictwa w Polsce. Aspekty przestrzenne i regionalne" pp. 1-22.
13. *Strategia rozwoju województwa mazowieckiego do 2030 roku. Innowacyjne Mazowsze (The Development Strategy of the Masovia Province until 2030). Innovative Mazovia*, Marshal's Office of the Masovian Province, Warsaw 2013.
14. Wojewodzka-Wiewiorska, A., Dudek, H. (2016) Dynamics of Rural Areas Development in Poland; Convergence Analysis. Research for Rural Development 2016, volume 2, Proceedings of 22nd Annual International Scientific Conference, Jelgava, pp. 99-105.

TOURIST PROFILE IN ZEMGALE

Aija Eglite ¹, Dr.oec., professor; Liene Klauza ², Mg.oec.
^{1, 2} Latvia University of Life Sciences and Technologies

Abstract. Nowadays competition in tourism increases both in the supply of tourism services and with regard to the ways tourists are attracted. In order that Zemgale region can compete with the other regions of Latvia, growth in the tourism industry has to be promoted by engaging local authorities and the local public. According to statistical data available to Zemgale planning region specialists, mostly domestic tourists travel in Zemgale region. The research aim is to assess the profile of a tourist in Zemgale and opportunities for the attraction of potential tourists. The research analysed the most popular tourism objects in Zemgale and the opinions of tourism specialists on the existing situation and prospects for the tourism industry in the region. A tourist in Zemgale is mainly a one-day traveller. Nature tourism objects are mainly visited by families with children or schoolchildren groups. The main prospects for Zemgale region in tourism are associated with the development of new, innovative tourism products or services.

Key words: tourism, Zemgale, services.

JEL code: L83

Introduction

Nowadays the tourism industry develops very fast. Competition increases both in the supply of tourism services and with regard to the ways tourists are attracted. Tourism is defined as a stable economic activity. Tourism can be an important factor in the development of European regions. The infrastructure established for the purpose of tourism contributes to local development, while the created and maintained jobs can help to avoid the decline of industry and rural areas (Tourism statistics, 2015). The tourism industry is not independent. An improvement or a deterioration in this industry considerably affects other industries. For this reason, it is important to engage all stakeholders – ministries, local authorities, administrative institutions, entrepreneurs etc. – in tackling tourism industry problems (Latvijas Turisma pamatnostādnes..., 2014). In a general sense, tourism could be considered a demand-driven industry, yet the demand could not be met without supply. The tourism industry differs from other industries in being strongly associated with many other industries and the products supplied by them. That is why tourism cannot be identified as an autonomous, separate industry, and it is impossible to accurately compute its contribution to the economy (Forands, 2011). The theoretical foundation of tourism broadened when the role and influence of the tourism industry began being comprehended in the world and the EU (Kaufmane, 2011). Wishes of individuals after their travel increase, therefore the supply of tourism products tends to rise.

In his works, Freijers has analysed and stressed the influence and interaction of tourism with regard to the most important indicators of the national economy:

- tourism and economic growth (i.e. a value-added effect, an effect on GDP);
- tourism and employment (i.e. the number of jobs and earnings);
- tourism and price levels (i.e. the price level at the residence place of travellers and in foreign countries);
- tourism and international trade (i.e. an effect on the balance of payments);
- tourism and distribution (i.e. at the individual, regional and national levels);
- tourism and concentration (i.e. the competitiveness level in selected industries and market segments);
- tourism and ecology (i.e. natural and social sustainability (Frayer, 2011)).

¹Corresponding author. E-mail address: aija.eglite@llu.lv

Tourism contributes to other industries, attracts consumers and raises the overall standard of living. All the mentioned indicators interact and make an effect on the national economy on parish, municipal, regional and national scales. In order that Zemgale region can compete with the other regions of Latvia, growth in the tourism industry has to be promoted by engaging local authorities and the local public. The research object is tourism in Zemgale region, while the research subject is opportunities for the attraction of potential tourists.

The research aim is to assess the profile of a tourist in Zemgale and opportunities for the attraction of potential tourists. The specific research tasks are as follows:

1. To develop the profile of a tourist in Zemgale;
2. To assess opportunities for the attraction of potential tourists to Zemgale planning region.

The research employed the following research methods: data acquisition – document analysis and a sociological method – expert interviews; data processing: analysis, synthesis and graphic; as well as general research methods.

Research results and discussion

After joining the EU, Latvia experienced a period of fast tourism growth, which was followed by a sharp economic downturn that negatively affected the development of tourism. Since 2011, tourism in Latvia has returned to the path of growth. In order for Latvia to be able to compete with the tourism products offered by other countries, it is necessary to identify competitiveness advantages for Latvia. This is required to make tourism growth sustainable (Latvija turisma attīstības..., 2014). One of the largest problems in tourism in Latvia is explicit seasonality, as the consumption of tourism services considerably increase during the warm period of the year. It is important to have something unique and special in the offers of tourism products, which are also of adequate quality. Designing something new in the region that is not available elsewhere and that is demanded during the passive tourism season would be a significant contribution to the tourism industry. The following kinds of tourism are defined as strategic in Latvia:

- 1) business and event tourism;
- 2) health tourism;
- 3) nature tourism;
- 4) cultural tourism and creative industries (Latvija turisma attīstības..., 2014).

Nature and cultural tourism are mainly specific to Zemgale region, as well as creative industries. Tourism is defined as a priority in the development programmes of 35 out of 71 municipalities, with cultural tourism being referred to the most frequently. The total number of visitors, including foreigners, served in Zemgale region was the lowest among all the regions. The low figure could be explained by the fact that Zemgale is located very close to Riga and Pieriga; for this reason, foreign tourists prefer staying overnight there, and Zemgale is only a place of objects to be sightseen.

To describe the existing situation in the tourism industry in Zemgale region, the authors used the Sustainable Development Strategy of Zemgale Planning Region 2015-2030, the Development Programme of Zemgale Planning Region 2015-2030, the website of Zemgale Planning Region (ZPR), the website of the Zemgale Tourism Association as well as the data on Zemgale region available on the website of the Central Statistical Bureau.

The ZPR Sustainable Development Strategy was produced in 2015; it describes the existing situation in tourism in Zemgale region. Nature values in Zemgale, unhurried leisure on Zemgale waters, Zemgale – a rich cultural and historical region with palaces and manor houses –, produced

in Zemgale – these are only a few values referred to by Zemgale tourism coordination team members.

The Zemgale Tourism Association suggests 10 most important objects to be sightseen in Zemgale region by both domestic and foreign tourists. They are as follows: 1. Rundale palace (Rundale municipality); 2. The Tervete Nature Park (Tervete municipality); 3. Bauska palace (Bauska); 4. The tower of Jelgava Holy Trinity Church (Jelgava); 5. Jelgava palace and the tombs of the Dukes of Courland (Jelgava); 6. Koknese castle ruins (Koknese municipality); 7. A boat and a sledge of Mezmaļi Vikings (Plavinas municipality); 8. Krustpils castle (Jekabpils); 9. A garden and a memorial museum of A.Upits (Dobele); 10. The Christmas Battle Museum (Jelgava municipality) (Zemgales planosanas reģiona..., 2014).

Most of the mentioned sites for sightseeing are cultural and historical tourism objects in particular. Six of them were among the most visited objects in the region in 2013-2016. The data on visitors were provided by the local authorities of Zemgale. Visitors from the neighbouring countries – Lithuania, Estonia and Russia – dominated in the territories located close to Riga. In contrast, the western part of Zemgale was preferred by tourists from Germany, Ireland, Sweden, Poland and France, while fewer tourists arrived from Finland, Belarus, Italy, Spain, Great Britain, the USA and India. The eastern part of Zemgale was popular for tourists from Germany, Russia, Estonia, Australia, Great Britain, Poland, Lithuania, Austria, as well as the USA, Finland, Sweden and France (Zemgales planosanas reģiona..., 2014).

A large number of domestic and foreign tourists is usually observed during events in Zemgale region. Among the largest events that attracted most visitors were the International Ice Sculpture Festival (47000 visitors in 2010; 41000 in 2013; 85000 in 2017), the International Sand Sculpture Festival (26000 visitors in 2011; 25400 in 2013) as well as the Jelgava City Festival and the General Dairy, Bread and Honey Festival that attracted at least 22000 visitors each. In recent years, important sports and international activities have been held at the Zemgale Olympic Centre. The annual classical music concert in a flowering lilac garden in spring in Dobele, the Catfish Waking Festival in Koknese, the Semigallians Festival and Walpurgis Night in Tervete etc. have to be mentioned as well (Zemgales planosanas reģiona..., 2014).

To conduct a quantitative study, the research used the Zemgale tourist coordination team, which was comprised of not only representatives of the administration of Zemgale planning region and of the local government of the municipality, mostly tourism information centre (TIC) specialists, but also of representatives of the nongovernmental and business sectors. The representatives were sent e-mails with questions. Sixteen expert interviews were carried out – with tourism specialists, consultants, managers, a public relations specialist and a tourism organiser.

Figure 1 presents the opportunities for tourism development that were identified based on the expert answers. A number in the parentheses after every opportunity indicates the number of specialists who referred to it as necessary for tourism development in future.

The development of new, innovative tourism products that would attract more domestic and foreign tourists was among the most frequently indicated factors (i.e. five times). The Jelgava city specialists referred to the establishment of the "Caramel Workshop" as a successful example – it was visited by more than 30000 individuals in the first year. The reconstruction of infrastructure, roads in particular, is required in the municipalities having a high proportion of gravel roads and poor-quality asphalt roads. The development of tourism is hindered by non-asphalted roads, the

poor-quality infrastructure and the poor condition of paved roads. The need to improve the condition of roads was noted by a third of the experts.

Special attention has to be paid to the establishment of new accommodation facilities, as four municipalities were short of them. The expensive maintenance of such facilities outside the active season when the tourist flow is the lowest was mentioned as one of problems. Making information about tourism opportunities in a municipality available to foreign tourists was of the same importance. The municipality website is one of the first options for visitors to seek information; the website has to be understandable and easy to perceive. Four of the municipalities believed that the development of a website or a booklet in many languages was an opportunity for tourism development. Koknese municipality, for example, had already been working on a new website for tourism (www.visitkoknese.lv), which would potentially attract more foreign tourists. The specialist of Plavinas municipality suggested producing materials on tourism in Lithuanian, Polish, Estonian and other languages. The other municipalities stressed the development of diverse tourist routes.

The municipalities of Dobeles and Aizkraukle suggested developing active tourism as one of the opportunities. Active tourism in the municipality provides more opportunities to attract diverse target tourist audiences. There were municipalities that revealed that the lack of their local governments' interest in tourism was the reason for low tourism activity in the municipalities. Tourism was not a priority for some local governments, as their municipalities had a few tourism objects or they primarily or even secondary tackled other problems.



Source: authors' construction based on ZPR tourism specialist answers, 2017

Fig. 1. Opportunities for tourism development in Zemgale region

The creation of a reliable and unified counting system would be one of the tasks to be performed not only in the municipalities that stressed it as a priority but also in the other municipalities.

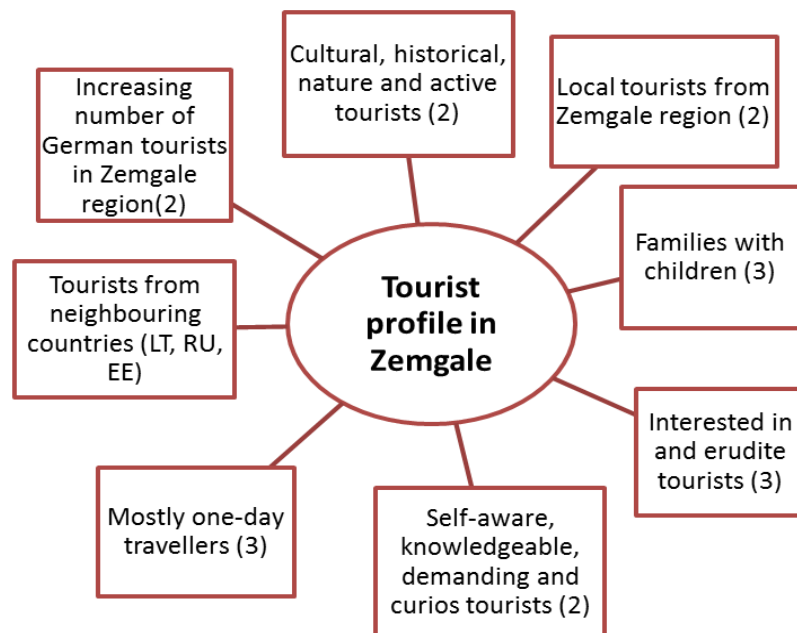
Zemgale planning region municipalities have to establish cooperation teams for different tourism objects. This would give an opportunity to get familiarised with the ideas of other professionals, experience stories and suggestions. For example, after tourist counters have been installed, conclusions have to be drawn with regard to what contribution is made by tourism in any municipality. Tourism clusters have to be created so that the region is competitive with cities in terms of tourism offers. The Guidelines for Tourism Development define a tourism cluster as a concentrated group of tourism service providers, support organisations and research and development institutions that provides effective coordination and cooperation in a certain geographic place, thus developing complex tourism offers. The creation of such clusters would increase the competitiveness of the region with cities and the other regions. Cooperation with a number of organisations would raise the quality of tourism services, as it is going to be controlled by several institutions. It is important to be aware that the charm of many objects for sightseeing lies in the offer of a number of entertainment places and attractions in the nearest vicinity. Climatic conditions should not influence the demand for tourism at all sites for sightseeing. Many interviewed Zemgale planning region tourism specialists referred to the reconstruction of roads as one of the most essential opportunities for tourism development. This factor is very important for creating tourism clusters in the regions.

It is important to ensure that destinations are easy to reach by private vehicles and public transport. The Guidelines for Tourism Development stress the fact that the resources invested in a tourism product or service will in no way be repaid if the tourism destinations are not easy to reach.

As tourism develops in the region, it is necessary to work on information availability, new technologies, innovation, coordinated information aggregation and other factors that contribute to the growth of the tourism industry.

The answers given by the specialists on what kind of tourists most frequently visit tourism objects in their municipalities were used to identify the characteristics of a tourist in Zemgale. Figure 2 shows the general profile of a tourist in Zemgale. It has to be added that the information acquired was based on the individual perspective of the specialists and their experience gained when daily meeting visitors at tourism information centres and at sites for sightseeing.

A tourist in Zemgale is mainly a one-day traveller who, after the sightseeing, stays overnight in Riga or goes to Kurzeme region for sightseeing and stays overnight there. Mostly residents of the nearest municipalities or regions who wish to spend their leisure time outside their places of residence travel in Zemgale region. According to the data provided by the specialists, the proportion of foreign tourists from the neighbouring countries – Lithuania, Russia and Estonia – was the highest. Based on the positive feedback from tourists, the research found that cultural-historical, nature and active tourism were three the most popular kinds of tourism in Zemgale planning region. It is very difficult to accurately describe a tourist in Zemgale because not all TICs perform unified and systematic data collection and analysis. There are municipalities where the data collection is done manually, keeping counting records in a book, which is an inefficient and inaccurate way of doing it.



Source: authors' construction based on ZPR tourism specialist answers, 2017

Fig. 2. Tourist profile in Zemgale

As regards the opportunities for the attraction of potential tourists, modern tourists have to be attracted by means of new, innovative tourism products that contrast with the other tourism products. It is important to produce easy-to-understand sources of information – booklets, maps and tourism websites. As social networks progress fast, one has to carefully work on tourism product advertising, as the official website of the tourism object or the tourism website of the municipality are the first information source any traveller seeks when planning travel to a new destination. Facebook, Twitter and Instagram are among the modern most popular social networks that are used to popularise the products offered. Already now many municipalities use Facebook features, creating a social account where to advertise the latest events and offers and communicate with the audience that use social networks.

The second most important factor in attracting potential tourists relates to raising the level of hospitality and quality in serving current tourists. It is important that the tourists who have visited sites for sightseeing in Zemgale are those who express their opinions about their experiences and give feedback. Responsive, knowledgeable and polite specialists in tourism, a well-structured environment and interesting activities are what encourage tourists to come again.

The following largest problems in counting tourists were mentioned by the tourism specialists:

- the counting is not done at all tourism objects;
- those who do it, do not do that in a unified system (data are difficult to compare);
- tourists themselves do not fill in questionnaires;
- counting of travellers is done by means of a book;
- tourists attend tourism objects individually (do not visit a TIC);
- counting of tourists is difficult to do at a large flow of the tourists (large events);
- tourism service providers do not send in data or only approximate data.

Not only tourism entrepreneurs themselves or the local authority but also the national government have to work on establishing a tourist counting system because it would be easier to aggregate the statistical data and compare them with those for the other regions. Entry to many

nature tourism sites in Zemgale are free of charge; therefore, it is difficult to do a count, as no tourism employee is assigned to do it or no tourist counters are installed.

The need for new, innovative tourism products in Zemgale region was mentioned by five of the interviewed specialists. There is a demand for something new and not seen elsewhere by tourists. It is important for Zemgale region to attract new, knowledgeable specialists in tourism who are able to begin and maintain cooperation between tourism entrepreneurs and national institutions, hold activities and promote the activity of current tourism service producers.

The shortage of hotels and accommodation facilities is the second largest problem in municipalities, as it is difficult to provide accommodation for a large flow of travellers. It has to be noted that the availability of accommodation is only one of the factors that affects the flow of tourists. Entertainment opportunities after doing sightseeing are essential as well. The supply of entertainment in cities is sufficient, whereas in towns and rural areas the situation is opposite. There is a demand for entertainment by travellers in the evening or at night. This is one of the reasons why tourists do not prefer staying overnight at rural accommodation facilities and, instead, go to Riga or other cities.

Figure 3 presents the results of expert interviews about what kind of tourists every municipality would prefer.



Source: authors' construction based on ZPR tourism specialist answers, 2017

Fig. 3. Desired tourist profile in Zemgale region

In their municipalities, the tourism specialists of Zemgale planning region would prefer mostly foreign tourists – either from Lithuania or the Scandinavian countries –, as well local travellers, including schoolchildren and families with children, from the neighbouring municipalities. The tourism information centre specialists would like to see more travellers interested in cultural and historical objects in the city who are curious, patriotic and having a sense of humour.

Conclusions, proposals, recommendations

The offers of tourism in Zemgale planning region represent cultural, nature and water tourism. Zemgale is rich in cultural-historical heritage – palaces, manor houses, castle ruins and monuments. Rundale palace and its museum has persistently been the most popular tourism object in the last five years.

According to the information provided by the Zemgale tourist coordination team, individual TICs and Zemgale region as whole had no unified tourist counting system. In some tourism information centres, the counting of travellers was done by means of a book. The counting system in Zemgale region was not unified and complete, as no national legal acts on tourism regulated it.

In the opinion of the experts, the most significant hindering factors for the tourism industry were the poor quality of roads and the shortage of accommodation facilities, financial resources and new, knowledgeable tourism specialists.

A tourist in Zemgale region is mainly a one-day traveller who, after the sightseeing, stays overnight in Riga or goes to Kurzeme region. Tourists to Zemgale come mainly from the neighbouring countries – Lithuania, Russia and Estonia – and prefer cultural-historical and nature tourism sites. Nature tourism sites are mainly visited by families with children or schoolchildren groups.

In Zemgale region, the key opportunity for tourism development is the creation of new, innovative, elsewhere unavailable tourism products or services of high quality that could attract a large target audience among domestic and foreign tourists.

The Zemgale Tourism Association in cooperation with Latvian Tourism Advisory Council representatives have to develop and introduce a uniform digitalised tourist counting system at tourism information centres and private enterprises providing tourism services.

Desired tourists in Zemgale region are those interested in cultural and historical heritage from Scandinavia or Lithuania, as well as schoolchildren from the neighbouring municipalities, families with children who are curious and patriotic, have a sense of humour and are interested in the site for sightseeing.

Bibliography

1. Forands, I. (2011). *Viesnicu menedzments (Hotel Management)*. Riga: Latvijas Izglitības fonds. p. 231.
2. Freijers, V. (2011). Turisma marketings. Uz tirgu orientēta turisma mikroekonomikas un makroekonomikas pārvaldība (*Tourism Marketing. Market-oriented Microeconomic and Macroeconomic Tourism Governance*). Riga: Turība University. p. 621.
3. Kaufmane, D., Eglite, A. (2016). Private and Public Sector Cooperation in Tourism. *Economics Science for Rural Development: Proceedings of the International Scientific Conference*, Nr. 42. Jelgava: LLU, pp. 93-100.
4. *Latvijas turisma attīstības pamatnostādnes 2014.-2020.gadam* (2014): MK 2014.gada 3.julija rīkojums Nr.326 (*Guidelines for Tourism Development in Latvia for 2014–2020. Cabinet Regulation of 3 July 2014 No.326*). Retrieved: <https://likumi.lv/doc.php?id=267332>. Access: 16.01.2018.
5. Tourism statistics (2015). Eurostat. Statistics Explained . Retrieved: http://ec.europa.eu/eurostat/statistics-explained/index.php/Tourism_statistics. Access: 16.09.2017.
6. Zemgales planosanas reģiona attīstības programma 2015-2020. Esosas situācijas raksturojums (2015). Zemgales planosanas reģions (*Development Programme of Zemgale Planning Region 2015-2030. Characteristics of the Current Situation. Zemgale Planning Region*). p. 180.
7. Zemgales planosanas reģiona ilgtspējīgas attīstības stratēģija 2015-2030 (2015). Zemgales planosanas reģions. (*Sustainable Development Strategy of Zemgale Planning Region 2015-2030. Zemgale Planning Region*). p. 71.

ECONOMIC COSTS OF YOUTH UNEMPLOYMENT IN THE EUROPEAN UNION

Līva Grīneviča¹, Dr.oec.; Baiba Rīvza², Dr.habil.oec.

¹ Latvian Academy of Sciences; ² Latvia University of Life Sciences and Technologies

Abstract. Unemployment is considered a broad macroeconomic problem that is associated with job absorption, the wasting of human resources, the performance of the labour market, the success of economic policy and even with the risk of inflationary pressures. Unemployment itself has hidden potential and has become a significant and serious social problem of the society (Novak, Darmo, 2015).

Young people have been among those most affected by the recent financial crisis. National labour force surveys (Hoffman, 2011) show that since 2008 the youth unemployment rate has risen in all the EU Member States (Hjuza & Borbejs-Pece, 2012). The current economic instability in the context of youth's prospects and opportunities in the labour market is uncertain (Balan, 2014). Youth unemployment has also a negative effect on economic growth and productivity.

The aim of the paper is to identify the importance of youth unemployment and draw the society's attention to the consequences. In the paper, the authors provide a better understanding of losses for the country due to unemployed young people by analysing the cost of youth unemployment in the European Union using the gross domestic product (GDP) approach.

Key words: youth unemployment, costs of youth unemployment, gross domestic product (GDP).

JEL code: J20, J21

Introduction

The European Union (EU) is facing a new challenge related to the so-called "lost generation" and solving the status of this generation in the global aspect. The role of youth is undeniable, and countries have to revise political positions related to the young generation, because the discontent of youth can become a major force for changing political regimes. If there are no attempts to solve the problem of youth unemployment, we might in future expect economic and political instability in the EU, as well as globally (Martincova, 2005).

The purpose of the paper was not to solve all problems associated with youth unemployment. In this case, the authors would like to introduce readers to the youth unemployment problem in the EU, economic costs of youth unemployment and the calculation of economic losses from unemployed youth in the European Economic Area.

The main aim of the research is to calculate the lost GDP from youth unemployment in the EU.

The following tasks are set to achieve the aim:

- 1) to describe the main trends in youth unemployment in the EU;
- 2) to evaluate the theoretical findings on youth unemployment and economic costs of unemployment by different authors;
- 3) to calculate the lost GDP from youth unemployment in the EU in 2016.

Novelty of the research: the lost GDP due to youth unemployment in the EU in 2016 was calculated.

Research methodology: the monographic and descriptive method, statistical research methods, the graphic method, synthesis and analysis, the logical construction method, calculations of the lost GDP from youth unemployment in the EU in 2016.

Theoretical framework of the research: the research is based on other scientific research studies and findings in the economic field, statistical information provided by Eurostat.

¹Corresponding author. E-mail address: liva_g@inbox.lv

²Corresponding author. E-mail address: baiba.rivza@llu.lv

Research results and discussion

1. Importance of youth unemployment

The current global economic situation represents particularly difficult labour market experience for young people. Young people are disadvantaged in finding a job, especially those with low skills, without education and labour market experience. Those young people meet with discrimination when they want to enter the labour market. Youth unemployment has become a major policy challenge for governments as well as employers. Youth unemployment promotes serious consequences not only for the young unemployed but also for the state.

Authors Dao and Loungani also accent that unemployment leads to significant losses both for the unemployed and for society as a whole, the damage increases with the length of unemployment (Dao, Loungani, 2010).

According to authors Clark and Summers (1982), Bell and Blanchflower (2010) and Barbagelata (2012), the transition from school to work of young people is affected by certain factors in the labour market.

Main causes of youth unemployment:

- Social conditions of family (young parents, one parent etc.);
- Social competencies of young people (low personal and professional growth);
- The level of education (low-skilled, not educated);
- Cultural differences (national or ethnic minorities);
- Health problems (chronic or mental health problems, disability);
- Social, economic and political conditions, created by the state and society;
- Geographical conditions and economic stability (young people in rural areas, availability of transport etc.).

According to previous mentioned causes, the youth unemployment is closely linked to successful participation in society, as well as integration into the labour market.

Author Barbagelata considers that adequate level of education and training promote access to better positions on the part of young people under normal economic conditions, doubts are cast on the effectiveness of training programmes in times of crisis (Barbagelata, 2012).

Being unemployed at a young age might have a negative impact in the form of "scarring effect". Young people might be trapped in lower limits of the labour market with lower qualification opportunities, a lower wage level and with poor prospects for better jobs. This fact might in future lead to long-term unwillingness to find a job, even to a risk of social exclusion by the society (Novak, Darmo, 2015).

Blanchflower and Freeman have found that despite a deteriorating situation in labour market for young people, only few riots have occurred (Blanchflower, Freeman, 2000). Especially, youth unemployment affects social exclusion, and in the case of long-term inability by young people to find a job, it has negative consequences for future working lives in terms of lower incomes or wages (Fares, Tiongson, 2007).

Costs of unemployment include loss of income, loss of skills and qualifications, negative impacts on health, etc. For society, it is the fall in tax revenue, and increases of fiscal cost are due to unemployment benefits, income inequality and poverty increase, weakening of social cohesion (e.g. less trust in the state power) and the loss of human capital. Structural unemployment causes a mismatch between labour supply and demand (e.g. skills and geographical mobility). One of the

¹Corresponding author. E-mail address: liva_g@inbox.lv

²Corresponding author. E-mail address: baiba.rivza@llu.lv

reasons is the on-going price and wage rigidities. Unemployment creates significant losses to person and to the whole community (Augsts bezdarbs Latvija..., 2010).

Another metric that has a direct implication for the costs of unemployment is the duration of unemployment spells. A longer unemployment spell carries the risk of entrenching cyclical unemployment into a structural phenomenon as workers lose human capital and become detached from the labour force (Blanchard and Summers, 1986).

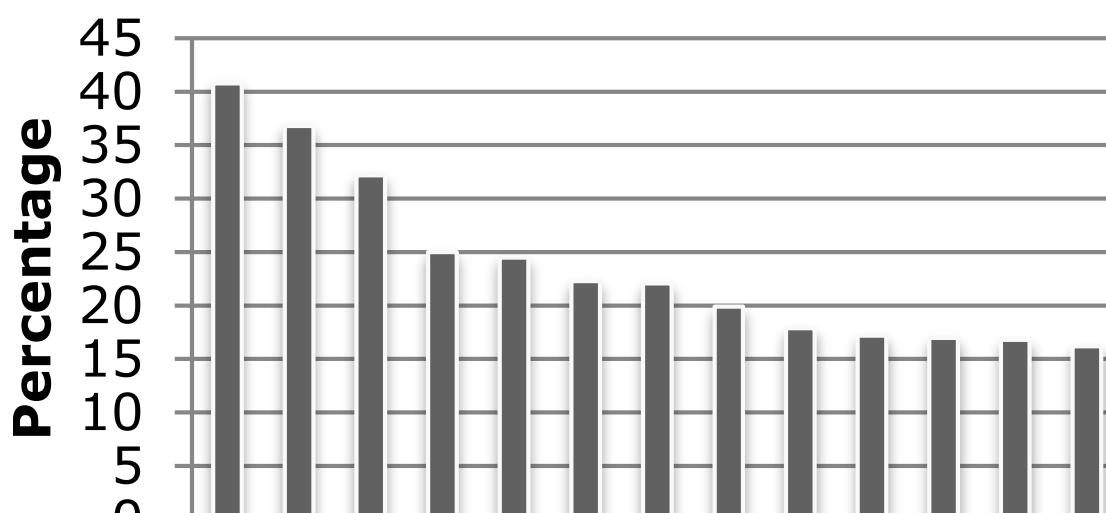
Overall, the economic and social costs of unemployment include:

- loss of human capital;
- social problems;
- loss of income for the unemployed;
- less tax revenues and higher government borrowing;
- inefficient use of resources;
- costs to government (lost tax revenue, lost GDP) (Economic costs of..., s.a.).

2. Current situation in the European Union

In the European Union and the euro area, unemployment has risen since 2008, which is due to the economic crisis which caused bankruptcy and financial trouble for many employers, and thus led to considerable job loss, less job offerings, and consequently, to a rise of the unemployment rate. Older workers are struggling to find new jobs despite their experience and knowledge, as well as young people are trying to find a job after graduating their studies (Statista, 2018).

According to Eurostat, in December 2017, 3.654 million young persons (under 25) were unemployed in the EU-28, of whom 2.574 million were in the euro area. Compared with December 2016, youth unemployment decreased by 411 000 in the EU-28 and by 301 000 in the euro area. In December 2017, the youth unemployment rate was 16.1 % in the EU-28 and 17.9 % in the euro area, compared with 18.0 % and 20.3 %, respectively, in December 2016 (Eurostat, 2018).



*October 2017
 ** November 2017

Source: Statista, 2018.

Fig. 1. Youth unemployment (15 to 24 years old) rate in EU Member States in December 2017 (seasonally adjusted data)

According to Figure 1, the statistic shows the seasonally adjusted youth unemployment (15 to 24 years old) rate in EU Member States in December 2017. In October 2017, higher youth

unemployment rates were in Greece - 40.8 %, Spain - 36.8 % and Italy - 32.2 %, at the same time the EU average youth unemployment was only 16.1 %. In December 2017, the lowest rates were observed in the Czech Republic - 4.9 %, Germany - 6.6 % and Estonia - 6.8 %.

An analysis of youth unemployment rates in the Baltic States shows that a lower youth unemployment rate was in Estonia - 6.8 % (in November 2017), while in Latvia and Lithuania the youth unemployment rate was a little higher - 14.2 % in Latvia and 13.1 % in Lithuania. In the Baltic States, the youth unemployment rates were lower than the EU-28 average (Figure 1).

The authors consider that in Latvia the youth unemployment problem is also relevant because of the demographic situation - the proportion of young people in the total population is not high.

In foreign research studies, Latvia is positioned as a "depressive" region in the year 2030, which will have an insufficient population of young people. Thus, Latvia as a country with a business-friendly environment will not be able to be competitive relative to other European countries and the flow of investment will be at risk, as well as passed on other, more competitive and better developed regions in demographic terms (Grinevica et al., 2016).

3. Calculation of economic youth unemployment losses

Losses for the state from unemployed young people can be approximated by calculating the unmanufactured volume of gross domestic product (GDP) (in the given year), taking into account the proportion of the unemployed youth in the total number of employees.

GDP is the total volume of final products and services produced in a territory during the year. It is calculated using data of domestic production (at current and constant prices), expenditure (current and constant prices) and income (only current prices) (Iekszemes kopprodukts Latvija..., 2015).

Economic costs arise because economic resources are not fully exploited due to unemployment. The consequences are a decrease in the production of goods and services, personal income and state budget revenues. However, the expenditure of the state budget is growing. Economic growth is faster if employment grows and unemployment falls. However, in order to ensure a decrease in the unemployment rate, the situation has to be consistent with any other relevant relationship, e.g. the economic growth rate must be greater than the growth rate of annual potential GDP (Bikse, 2015).

Data on gross domestic product (GDP), active population, unemployment and youth unemployment were used to calculate the economic costs of youth unemployment in the Baltic States. It was assumed that the natural employment rate is 5 %.

The lost GDP due to youth unemployment in the European Union member States in 2016 was calculated using data from Eurostat (Table 1).

As it is seen in Table 1, the countries with the lowest number of employed persons were Malta - 189 thousand people, Luxembourg - 259 thousand and Cyprus - 354 thousand people.

For example, in 2016 the greatest lost GDP due to youth unemployment was in France - EUR 54955.11 million, Italy - EUR 42607.24 million, the United Kingdom - EUR 43123.56 million and Germany - EUR 21956.21 million.

¹Corresponding author. E-mail address: liva_g@inbox.lv

²Corresponding author. E-mail address: baiba.rivza@llu.lv

Table 1

Calculated data on the lost GDP due to youth unemployment in the European Economic Area in 2016

Country	GDP, current prices, million EUR	Active population (from 15 to 24 years), thousand	Employment, thousand	Youth unemployment (from 15 to 24 years), thousand	Lost GDP due to youth unemployment, million EUR
Belgium	423048.4	372	4539	74.9	6631.86
Bulgaria	48128.6	161	2953	27.7	428.89
Czech Republic	176564.3	330	5014	34.6	1157.49
Denmark	277489.1	482	2747	57.8	5546.75
Germany	3144050.0	4186	40158	295.2	21956.21
Estonia	21098.3	57	611	7.6	249.31
Ireland	275567.1	292	2066	34.7	4396.94
Greece	174199.3	262	3601	123.7	5684.82
Spain	1118522.0	1476	18176	656.1	38356.58
France	2228857.0	2766	26235	680.9	54955.11
Croatia	46382.1	176	1561	55.2	1558.15
Italy	1680522.8	1571	22231	593.3	42607.24
Cyprus	18122.5	35	354	10.3	500.93
Latvia	24926.7	75	862	13.0	357.13
Lithuania	38668.3	123	1317	17.8	496.49
Luxembourg	53004.8	21	259	3.9	758.23
Hungary	113730.8	346	4308	44.7	1121.07
Malta	9926.6	27	189	3.0	149.69
Netherlands	702641.0	1408	8216	152.3	12373.61
Austria	353296.9	565	4142	63.5	5145.49
Poland	425980.2	1381	15898	243.8	6205.89
Portugal	185179.5	364	4369	101.8	4099.04
Romania	169771.5	607	8166	125.1	2470.79
Slovenia	40418.1	68	902	10.3	438.46
Slovakia	81154.0	206	2471	45.8	1428.98
Finland	215615.0	323	2378	65.1	5607.53
Sweden	465186.2	642	4734	121.6	11351.57
United Kingdom	2395810.0	4434	30406	576.1	43123.56

Source: authors' construction based on Eurostat data

As shown in Table 1, in 2016 the lowest lost GDP due to youth unemployment was in Malta – EUR 149.69 million, Estonia – EUR 249.31 million, Latvia – EUR 357.13 million and Bulgaria – EUR 428.89 million.

Conclusions

According to the research results, the youth unemployment is a serious microeconomic and macroeconomic problem. Youth unemployment affects not only a young people social exclusion from society but also increases economic costs and decreases revenues for the state.

Compared with other unemployed groups, young people are less likely to become long-term unemployed.

The main reasons for youth unemployment are the lack of education as well as qualitative work experience in the corresponding profession.

¹Corresponding author. E-mail address: liva_g@inbox.lv

²Corresponding author. E-mail address: baiba.rivza@llu.lv

Youth unemployment rates (from 15 to 24 year olds) vary widely across European countries. In December 2017, Greece (40.8 % in October 2017), Spain (36.8 %) and Italy (32.2 %) had the highest youth unemployment rates, but such countries as the Czech Republic (4.9 %), Germany (6.6 %) and Estonia (6.8 % in November 2017) had the lowest rates.

Latvia still has the highest unemployment rate among the Baltic States. In December 2017, in Latvia the youth unemployment (from 15 to 24 year olds) rate was 14.2 %, Lithuania - 13.1 % and Estonia only 6.8 % (in November 2017).

According to the research results, in 2016 the greatest lost GDP due to youth unemployment was in France - EUR 54955.11 million, Italy - EUR 42607.24 million and the United Kingdom - EUR 43123.56 million, however, the lowest lost GDP due to youth unemployment was in Malta - EUR 149.69 million, Estonia - EUR 249.31 million and Latvia - EUR 357.13 million.

Acknowledgements

The preparation of the paper was supported by National Research Program 5.2. Economic Transformation, Smart Growth, Governance and Legal Framework for the State and Society for Sustainable Development - a New Approach to the Creation of a Sustainable Learning Community, the project EKOSOC-LV.

Bibliography

1. *Augsts bezdarbs Latvijā – nolemība vai izvēle? (High Unemployment in Latvia - a Fiction or Choice?)* (2010) JSC Swedbank. Retrieved: https://www.swedbank.lv/files/analitiskie_materiali/swedbank_petijums/Swedbank_Petijums_2010_12_LV.pdf. Access: 02.02.2018.
2. Balan, M. (2014) Analysis of Unemployment among Young Individuals from Romania by Econometric Methods. *International Auditing & Risk Management*, No. 3 (35), pp. 90-97.
3. Barbagelata, H.H. (2012) Youth, Unemployment and Education. *Cambridge Scholars Publishing*. pp. 3-12.
4. Bell, D. N. F., Blanchflower, D. G. 2010. Youth Unemployment: Deja Vu? Institute for the Study of Labour, IZA Discussion Paper No. 4705, Germany, Bonn, pp. 1- 58.
5. Bikse, V. (2015). *Makroekonomika: teorija un politika (Macroeconomics: Theory and Policy)*. Liepāja: Liepāja University, published by "LiepU LiePA tipografija", pp. 69– 91.
6. Blanchflower, D. G., Freeman, R. B. (2000). *The Declining Economic Status of Young Workers in OECD Countries*, Youth Employment and Joblessness in Advanced Countries. NBER. pp. 19-56.
7. Clark, K. B., Summers, L. H. (1982). *The Dynamics of Youth Unemployment*, NBER Chapter 2, p. 72.
8. Dao M., Loungani P. (2010) *The Human Cost of Recessions: Assessing it, Reducing it*. IMF Staff Position note SPN/10/17.
9. *Economic Costs of Unemployment (s.a.)*. Retrieved: <https://www.economicshelp.org/macroeconomics/unemployment/costs/>. Access: 06.02.2018.
10. *Employment and Activity by Sex and Age - Annual Data*. Retrieved: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsl_emp_a&lang=en. Access: 02.02.2018.
11. Fares, J., Tiongson, E. R. (2007). Youth Unemployment, Labour Market Transitions, and Scarring: Evidence from Bosnia and Herzegovina. In: *Policy, Research, Working paper*. No. WPS 4183, Vol. 1.
12. *GDP and main components (output, expenditure and income)*. Retrieved: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10_gdp&lang=en. Access: 02.02.2018.
13. Grinevica, L., Rivza, B., Rivza, P. (2016) Scenarios for Reducing Youth Unemployment and Promoting Sustainability in the Regions of Latvia. In: *Journal of Security and Sustainability Issues*, Vol.5., No. 3., ISSN 2029-7017 print/ ISSN 2029-7025 online, pp. 437-449.
14. Hjuza, D., Borbejs- Pece, T. B., (2012) *Jauniesu bezdarbs: muslaiku krīze. Muzilga karjeras atbalsta rīcībspolitikas nozīme darba piedāvājuma un pieprasījuma jomā (Youth Unemployment: the Current Crisis. A Lifelong Career Policy in the Field of Job Supply and Demand)*. European Lifelong Career Support Policy Network. pp. 1-20.
15. Hoffman, N. (2011). *Schooling in the Workplace- How Six of the World's Best Vocational Education Systems Prepare Young People for Jobs and Life*. Harvard Education Press, Cambridge, MA.
16. *Iekšzemes kopprodukts Latvijā (Gross Domestic Product in Latvia)* (2015). Retrieved: <http://www.csb.gov.lv/statistikas-temas/metodologija/iekšzemes-kopprodukts-latvija-kopa-eks-95-34403.html>. Access: 28.01.2018.

¹Corresponding author. E-mail address: liva_g@inbox.lv

²Corresponding author. E-mail address: baiba.rivza@llu.lv

17. Martincova, M. (2012) Openness of Economy and Economic Growth. Globalization and Higher Education in Economics and Business Administration. *Proceedings of the 6th International Conference. Alexandru Ioan Cuza University Press*, pp. 588-592.
18. Novak, M., Darmo, L. (2015). The Youth Unemployment in the European Area. *Proceedings of the SGEM International Multidisciplinary Scientific Conference on Social Sciences and Arts*. Section economics and Tourism. pp. 963-970.
19. *Unemployment by sex and age - annual average*
<http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do#>. Access: 02.02.2018.
20. *Unemployment statistics* (2018). Retrieved: http://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment_statistics. Access: 07.02.2018.
21. *Youth Unemployment Rate in EU Member States as of December 2017 (seasonally adjusted)* (2018) Statista. Retrieved: <https://www.statista.com/statistics/266228/youth-unemployment-rate-in-eu-countries/>. Access: 06.02.2018.

ASSESSMENT OF THE DEVELOPMENT OF A BORDER AREA USING POLAND'S EASTERN BORDERLAND AS AN EXAMPLE

Agnieszka Malkowska¹, Ph.D.; Arkadiusz Malkowski², Ph.D.

¹ University of Szczecin, Faculty of Management and Economics of Services; ² West Pomeranian University of Technology in Szczecin, Faculty of Economics

Abstract. Socioeconomic development is one of the major research topics undertaken in economic sciences. It is a multidimensional and wide concept. The problems discussed in this paper are extremely essential not only from the point of view of countries, but also their regions and smaller territorial units. The development of border areas as one aspect of the aforementioned phenomenon is an important and interesting matter to look at. Such areas are universally regarded as peripheral and less-developed. Peripherality is a complex notion, although it is accepted that geographic accessibility is not the only or prevailing determinant of the development of lands situated along state borders. The purpose of this paper is to assess the socioeconomic development of Poland's eastern borderland. The borderland encompasses three regions, or voivodeships: Podlaskie, Lubelskie and Podkarpackie. Perkal's Index was used to assess the level of their socioeconomic development. The data to build the model on was derived from the Central Statistical Office. The analysis was carried out for 2004 and 2016 for all the 16 voivodeships of Poland, which allowed for comparisons to be made between them. The research showed that the level of socioeconomic development differed between the regions. In 2004, the three eastern borderland voivodeships scored the lowest in terms of the development indices when compared to the rest of the country. By 2016, the situation of the regions concerned had slightly improved. Among them, Podkarpackie Voivodeship had developed the most.

Key words: socioeconomic development, border area, Poland's eastern borderland, Perkal's synthetic index.

JEL code: O12

Introduction

The issues of socioeconomic development are of utter significance, and are thus explored within many academic disciplines. The approach to socioeconomic development and to the factors that determine it has evolved in time. The economic literature sources concerned with this subject-matter focus on, *inter alia*, identifying the main factors of development and determining and analysing the so-called growth and stagnation areas. While socioeconomic development research can be conducted on many planes, one of the most essential and interesting of them is that of the development of border regions, which are popularly believed to be peripheral. The purpose of this paper is to assess the socioeconomic development of Poland's eastern borderland. The area encompasses three voivodeships (Podlaskie, Lubelskie and Podkarpackie), directly borders Lithuania, Belarus and Ukraine, accounts for 20.2 % of Poland's area, and has a population of over 5.4 million.

As the research material, Polish and foreign literature concerned with the subject-matter, strategic documents, and statistical data from the Central Statistical Office's Regional Data Bank were used. Perkal's Index (Polish acronym WP), one of the available multidimensional comparative analysis methods, was used as the tool for assessing the socioeconomic development. It was calculated for 2004 and 2016 for all the 16 regions of Poland. This allowed for comparisons to be made across time and against the background of the remaining regions of the country. The period of study was selected so that it could offer uniform statistical data.

Research results and discussion

1. Research method

Numerous measures are used in studies of the development of territorial units (Strahl D., 2006), but there is not a perfect one there that would, on its own, allow us to evaluate

¹Corresponding author. Tel.: +48 607745626; E-mail address: agnieszka.malkowska@wzieu.pl

²Corresponding author. Tel.: +48 603178584; E-mail address: amalkowski@zut.edu.pl

the level of development and indicate whether the given region is better developed than others (Slaby T., 2004). For measuring the socioeconomic development of regions, both synthetic indices that cover the whole economy, and fragmentary ones that only show sections of it, are used. The synthetic indices are a function aggregating fragmentary information contained within particular assessment indices and allow for a general assessment of the development to be made (Kucinski K., 2009). The paper was developed using the multidimensional comparative analysis method, and more specifically – Perkal's synthetic index (WP) (Szymła Z., 2005).

The index building procedure entailed constructing a synthetic index that is a sum of standardized fragmentary indices, and followed these stages: 1. Selecting variables, 2. Standardization, 3. Changing destimulants into stimulants, 4. Determining the synthetic index. The observation matrix was created by describing each of the voivodeships with 11 indices.

The variable selection criteria cannot be of a universal nature (Heffner K., Gibas P., 2007). Such variables were selected that are essential from the point of view of the socioeconomic development of border areas, and take into account their potential for development, the inhabitants' entrepreneurial tendencies and their problems, and relationships with the abroad. At the same time, the data for the years 2004 and 2016 was available in an identical form, which allowed for comparisons to be made across time, and for any changes to be observed.

The following were qualified as diagnostic variables:

- x1 – registered unemployment rate (NTS-4, data for the years 2004 and 2016),
- x2 – demographic dependency ratio - non-working age population per 100 working-age people,
- x3 – gross domestic product per capita,
- x4 – persons employed in the R&D sector – per 1 000 professionally active people,
- x5 – expenditure on innovative activity in industrial enterprises,
- x6 – entities newly-registered in the REGON registry per 1 000 inhabitants,
- x7 – entities registered in the REGON registry per 10 thousand inhabitants,
- x8 – entities with foreign capital per 10 thousand inhabitants,
- x9 – municipal expenditure per inhabitant in PLN,
- x10 – municipalities' own income per inhabitant,
- x11 – R&D expenditure per capita.

According to the model's assumptions, the variables were standardized because they possessed different weights, which would have otherwise prevented them from being used for direct comparisons. In the next stage, Perkal's synthetic index was constructed as a sum of standardized fragmentary values:

$$WP = \frac{1}{n} \sum_{j=1}^n y'_{ij}$$

where:

WP – stands for Perkal's index

y'ij – stands for standardized value of the jth property in the ith object, after destimulants were changed to stimulants

n – stands for the number of objects

Unit classification was performed on the basis of the Perkal's index (WP) values obtained. The classes were determined on the basis of the arithmetic mean and standard deviation (Tab. 1.).

Table 1

Object classification using the mean value and standard deviation

Class	Range	Level of development
1.	$WP > \bar{x} + s$	very good
2.	$\bar{x} < WP < \bar{x} + s$	Good
3.	$\bar{x} - s < WP < \bar{x}$	Average
4.	$WP < \bar{x} - s$	Poor

Source: author's own work

The research procedure allowed for the construction of a synthetic measure of socioeconomic development for all the voivodeships, and for an assessment of the regions of Poland's eastern borderland in terms of the aspect concerned.

2. The concept and essence of socioeconomic development

The concept of "development" is a multi-level one, with no universal and generally accepted definition offered to date. There is actually a consensus that the concept is an ambiguous one (Domamski B., 2004). Therefore, in order to ensure a thorough research process and a deeper analysis of the issues related to development, further clarification of this category is required (for instance, by narrowing it down to its local, regional or socioeconomic dimensions). By this, we can avoid the difficulties related to defining it both as it comes to its substantive content and the method for measuring the level of development (Szewczuk A., 2011).

In Poland, regional development is analysed on the voivodeship level. B. Berry, E. Conkling and D.M. Ray (1976) claim that development is a special type of change which takes the form of the restructuring of certain elements of the economic system. These changes take the form of constantly replacing the current state of affairs with its better equivalent, i.e. one that is assessed positively using the assumed criteria (Gluszczuk D., 2011). Obviously, this not only regards the economic and social planes, but also the technical, technological and ecological ones. Social development is a condition precedent for economic development, and vice versa. One cannot exist without the other, whereas both of these elements make up a mechanism driving the 'virtuous circle'. The fact that both these basic components of development are prerequisites for each other turns out to be of significance in the long run (Gorniak J., Mazur S., 2012).

The development of border areas is determined by many factors (Greta M., 2013). In this case, however, a note also needs to be made of the processes and events occurring on the other side of the border, as well as the fact that the areas concerned are in a sense peripheral (Malkowski A., 2015) – or located far from the centre – regions (Idczak P., 2013). One classic characteristic of peripheral areas is their substantial distance from the main agglomerations and chief economic activity centres, which generates higher costs of transport and travel (Copus A.K., 2001). Nevertheless, in the time of globalization, with considerably reduced costs of transport and travel, this characteristic is insufficient to render their sound description. Other factors (of the so-called non-spatial peripherality) defining peripheral regions include, *inter alia*: poorly developed information infrastructure, poorly qualified human capital, fragmentary local business networks, weak civil society, institutional ineffectiveness, and undeveloped global connections (Copus A. K., 2001). Thus, the development of border areas is affected by a larger number of stimuli, which makes this process more complex than in other parts of the country (Malkowska A., Malkowski A., 2013).

¹Corresponding author. Tel.: +48 607745626; E-mail address: agnieszka.malkowska@wzieu.pl
²Corresponding author. Tel.: +48 603178584; E-mail address: amalkowski@zut.edu.pl

3. Assessment of the socioeconomic development of Poland's eastern borderland

The results of our research suggest that the level of development of particular regions in Poland is diverse (Tab. 2.). Among of the four classes named, the eastern borderland voivodeships demonstrated the lowest development indices in 2004. Podkarpackie Voivodeship was the weakest of them (WP = -0.92), with the subsequent positions occupied by Swietokrzyskie (WP = -0.85) and Lubelskie (WP = -0.84). Only Podlaskie was qualified among satisfactorily developed voivodeships in 2004. It must be noted, however, that Podlaskie scored the lowest in this group (WP = -0.71).

Table 2

Classification of the level of socioeconomic development of voivodeships in 2004 and 2016 taking into account Perkal's synthetic index

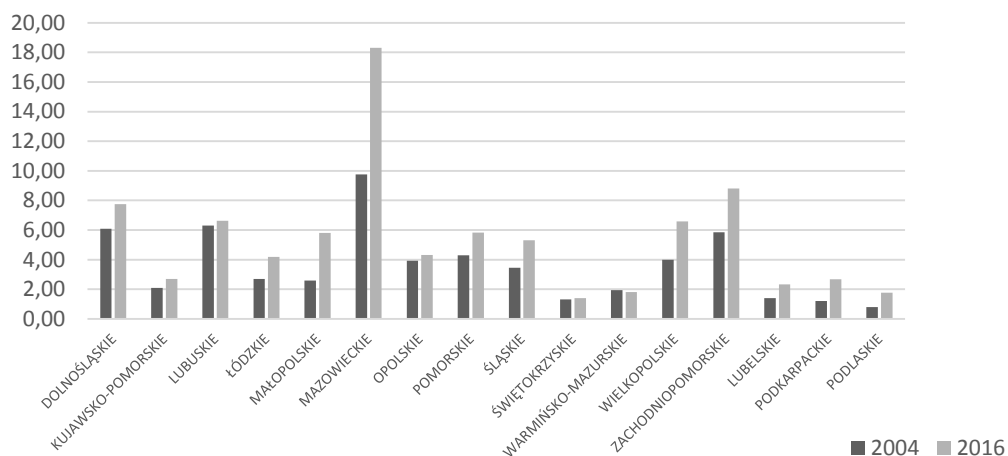
VOIVODESHIP (REGION)	WP 2004	ASSESSMENT	VOIVODESHIP (REGION)	WP 2016	ASSESSMENT
MAZOWIECKIE	2.19	very good	MAZOWIECKIE	2.09	very good
DOLNOSLASKIE	0.66	good	DOLNOSLASKIE	0.64	good
POMORSKIE	0.45		POMORSKIE	0.58	
WIELKOPOLSKIE	0.42		MALOPOLSKIE	0.47	
SLASKIE	0.40		WIELKOPOLSKIE	0.40	
ZACHODNIOPOMORSKIE	0.34		ZACHODNIOPOMORSKIE	0.13	
MALOPOLSKIE	0.15		SLASKIE	0.12	
LUBUSKIE	0.05		LUBUSKIE	-0.13	
LODZKIE	-0.03	satisfactory	LODZKIE	-0.19	satisfactory
KUJAWSKO-POMORSKIE	-0.32		OPOLSKIE	-0.22	
OPOLSKIE	-0.37		KUJAWSKO-POMORSKIE	-0.47	
WARMINSKO-MAZURSKIE	-0.63		PODLASKIE	-0.56	
PODLASKIE	-0.71		PODKARPACKIE	-0.57	
LUBELSKIE	-0.84	insufficient	WARMINSKO-MAZURSKIE	-0.64	insufficient
SWIETOKRZYSKIE	-0.85		LUBELSKIE	-0.78	
PODKARPACKIE	-0.92		SWIETOKRZYSKIE	-0.87	

Source: author's own work.

Both the decade of economic transformation in Poland and a strategic treatment of Poland's eastern borderland voivodeships have brought the expected changes in the level of these regions' development. All the subsequent programs under which additional financial support (including from the EU) was assigned to development projects in the so-called Eastern Poland have inspired clear economic recovery in those areas. This particularly applies to Podkarpackie Voivodeship, which in 2016 achieved distinctly better Perkal's Index results than in 2004. From the position of Poland's weakest region, it moved up to the 13th place. In 2016, it joined the group of voivodeships enjoying a satisfactory level of socioeconomic development. This should be regarded as a visible proof of the effectiveness of the pro-growth actions undertaken in this region. The region's production potential is concentrated within the means of transport and aviation domains. The research showed that in 20016 Podlaskie Voivodeship reached the highest WP (WP = -0.56) score among all eastern borderland voivodeships. In the same year, Lubelskie Voivodeship took the last place among them. What is characteristic here is that when compared to 2004, this region dropped from the 14th place to the 15th and continued to be classified among the lowest development index regions.

One of the indices used for the purposes of assessing a region's economic situation is gross domestic product per capita, an all-purpose and universally accepted measure. Its analysis showed that the borderland concerned was still characterized by regional inequalities, both with regard to its position within the external system (i.e. the Polish border area on the one hand and the neighbouring and clearly poorer regions of Ukraine and Belarus on the other), but also the internal system (the centre – peripheries relationship). In this context, Mazowieckie Voivodeship, which is Poland's strongest region and, at the same time, the direct support base for the eastern borderland voivodeships, is worth taking note of. Unfortunately, this area delivers a clear picture of developmental polarization to the benefit of the centre at the expense of the borderland.

Among the factors determining a region's development, investments are one of the major ones. A region's borderland and transit-area nature indicates it should be also attractive to potential investors. This particularly applies to export activity aiming at the eastern markets. Research showed a slight increase in foreign investor interest in Poland's eastern borderland (Malkowski A., Malkowska A., 2017). The number of registered enterprises with foreign capital increased markedly. This, however, does not change the fact that this area is characterized by the lowest number of enterprises with foreign capital per capita among all of the country's regions (Fig. 1.).



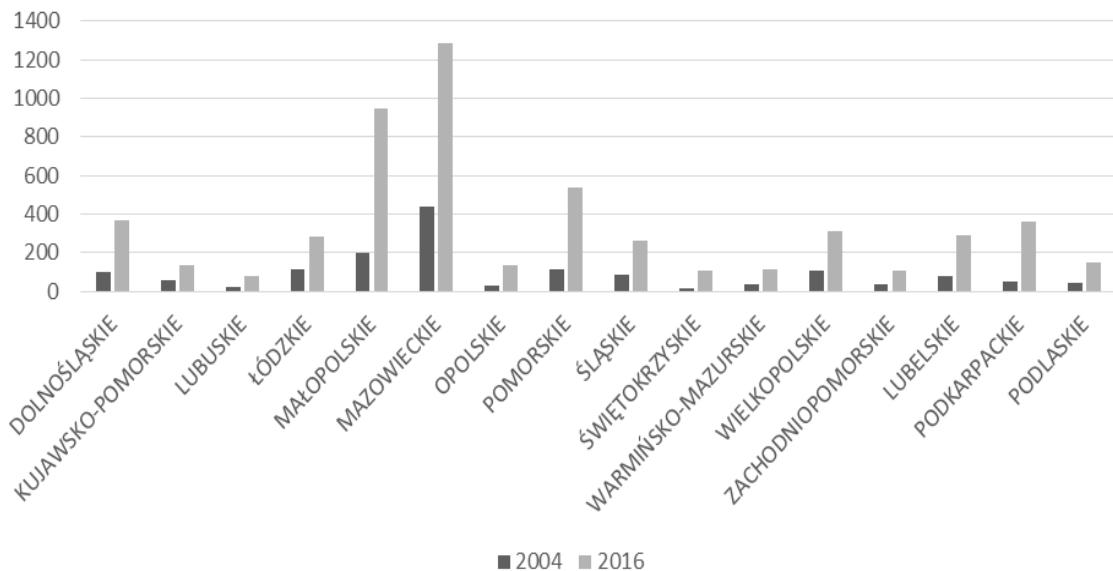
Source: Central Statistical Office

Fig. 1. Enterprises with foreign capital per 10 thousand inhabitants of Polish voivodeships

The data used in this model show that R&D expenditure increased considerably in Poland's eastern borderland voivodeships. In the case of Podkarpackie Voivodeship, such expenditure grew by a factor of six. In this voivodeship, PLN 50 was spent per capita in 2004, and PLN 358 already in 2006. Lubelskie and Podkarpackie voivodeships saw increased R&D expenditure, as well. It is worth adding that the highest values of innovation potential development in Poland between 2010 and 2015 were demonstrated by two regions of the country's eastern borderland: Lubelskie and Podkarpackie Voivodeships (Indeks Millenium, 2017).

The eastern borderland voivodeships are characterized by Poland's lowest entrepreneurial activity rates. The number of enterprises registered with the REGON system per capita places these voivodeships in the last three positions in the country. Both in 2004 and 2016, the lowest numbers of enterprises per capita were registered in Podkarpackie voivodeship. There were 665 per 10 thousand inhabitants in 2004, and 788 in 2016, respectively. In the case of Lubelskie Voivodeship, this number amounted to 684 (2004) and 816 (2016), and in Podlaskie Voivodeship

to 758 (2004) and 842 (2016). Such a low number of enterprises per 10 thousand inhabitants is also indicative of the amount of unused potential still lying dormant in the eastern borderland.



Source: Central Statistical Office

Fig. 2. R&D expenditure in PLN per capita

The eastern borderland's demographic situation is gradually improving, which translates into new opportunities for socioeconomic development that the whole macro-region is facing at the moment. An analysis of the demographic dependency ratio used in the model (x_2) showed that in the case of all the three eastern borderland voivodeships, their demographic situation improved. In 2004, Podlaskie Voivodeship came last among all Polish regions with a value of $x_2 = 63.7$ (mean x_2 value for Poland was 57.9 in 2004). In 2016, the demographic dependency ratio in this voivodeship amounted to 59.4, with Poland's mean value of 61.2. The demographic situation also improved in the other two voivodeships. Podkarpackie Voivodeship had a value of $x_2 = 62.9$ in 2004, and 62.3 in 2016. This means that despite all concerns, no massive demographic drain from the eastern for the benefit of the more developed parts of Poland borderland actually occurred. On the contrary, although the demographic situation is clearly worsening in Poland, the tendency observed in the eastern borderland voivodeships is quite the opposite.

Conclusions, proposals, recommendations

The development of border areas is determined by numerous processes and events. Our quantitative researched showed that Poland's eastern borderland encompassing three voivodeships continues to be one of Poland's regions with the lowest level of socioeconomic development. Lubelskie Voivodeship is the weakest in this category. Podkarpackie Voivodeship, in turn, made the largest progress between 2004 and 2016.

The following aspects should be highlighted as the main factors affecting the socioeconomic development of Poland's eastern borderland voivodeships: increasing innovativeness, growing R&D expenditure, and good (though not yet fully utilized) investment attractiveness and attractiveness related to its location on the border.

The region's main weaknesses are their insufficient entrepreneurial activity levels and inadequate investment, including foreign investment. This may lead to problems with building or

expanding the so-called business networks between the enterprises. It is highly important to regard such networks as means delivering essential opportunities for overcoming peripherality.

Any further socioeconomic development of Poland's eastern borderland voivodeships can be determined by, *inter alia*, developing their innovativeness through increasing R&D expenditure and ensuring stronger cooperation between the higher education institutions and businesses, and by developing entrepreneurial attitudes among the region's inhabitants and creating conditions favourable to external investors.

Bibliography

1. Berry, B., Conkling, E., Ray, D.M., (1976). *The Geography of Economic System*, Englewoog Cliffs, Prentice-Hall.
2. Copus, A.K., (2001). From Core-Periphery to Polycentric Development: Concepts of Spatial and a Spatial Peripherality, *European Planning Studies*, T.9, no 4, pp. 540-545.
3. Domanski, B., (2004). Krytyka pojecia rozwoju a studia regionalne (*Critique of the Concept of Development and Regional Studies*). *Studia Regionalne i Lokalne*, no 2(16), pp. 7-23.
4. Gluszczyk, D., (2011). Istota rozwoju regionalnego i jego determinanty (*The Essence of Regional Development and its Determinants*). *Ekonomia (Economic)*, no 5(17), pp. 74.
5. Gorniak, J., Mazur, S., (2012). *Zarzadzanie strategiczne rozwojem (Strategic Management of Development)*. Ministerstwo Rozwoju Regionalnego, Warszawa, pp. 15.
6. Greta, M., (2013). Euroregiony polskie w procesie integracji europejskiej oraz w przewyeczaniu peryferyjnosci i dysproporcji regionalnych (*Polish Euroregions in the Process of European Integration and in Overcoming Peripherality and Regional Disparities*). Wydawnictwo Uniwersytetu Lodzkiego, Lodz, pp. 13.
7. Heffner, K., Gibas, P., (2007). Analiza ekonomiczno-przestrzena (*Spatial Economic Analysis*). Wydawnictwo Akademii Ekonomicznej w Katowicach, Katowice, pp. 12-13.
8. Idczak, P., (2013). Wielowymiarowa koncepcja peryferyjnosci regionalnej. Identyfikacja regionow peryferyjnych w Polsce (*Multidimensional Concept of Regional Peripherality. Identification of Peripheral Regions in Poland*). Difin, Warszawa, pp. 80-121.
9. Indeks Millennium, (2017). Potencjal Innwacyjnosci Regionow (*Millennium Index 2017. The Potential of Regional Innovation*). Retrieved: https://www.bankmillennium.pl/documents/10184/25989931/Indeks_Millennium_2017.pdf. Access: 31.01.2018.
10. Kucinski, K., (2009). *Geografia ekonomiczna (Economic Geography)*. Wolters Kluwer, Krakow, pp. 423.
11. Malkowska, A., Malkowski, A., (2017). Eksport jako czynnik rozwoju wojewodztw wschodniego pogranicza Polski (*Exports as a Factor in the Development of Poland's Eastern Borderland*). *Folia Pomeranae Universitatis Technologiae Stetinensis, Oeconomica*, no 333(86)1, pp. 43-50.
12. Malkowski A., Malkowska A., (2013). Creating a Competetive Region on the Example of Pomerania Euroregion, *Prace naukowe UE we Wroclawiu*, no 315, Wyd. UE we Wroclawiu, Wroclaw, pp. 523-532.
13. Malkowski, A., (2015). Competitive Border Region Theory and Practice, *Przedsiębiorczosc i Zarzadzanie*, T. 16, cz. 2, z. 5, pp. 183-190.
14. Slaby, T., (2004). Nowe ujecie badan spolecznych (*New Approach to Social Research*). *Nierownosci Spoleczne a Wzrost Gospodarczy* 2004, no 4, pp. 57-66.
15. Strahl, D., (2006). *Metody oceny rozwoju regionalnego (Methods for Assessing Regional Development)*. Wydawnictwo Akademii Ekonomicznej im. O. Langego we Wroclawiu, Wroclaw.
16. Szewczuk, A., (2011). Rozwoj lokalny i regionalny jako przedmiot badan naukowych (*Local and Regional Development as a Subject of Scientific Research*) [in:] B. Filipiak, M. Kogut, A. Szewczuk, M. Ziolo, *Rozwoj lokalny i regionalny. Uwarunkowania, finanse, procedury (Local and Regional Development. Conditions, Finances, Procedures)*. Fundacja na rzecz Uniwersytetu Szczecinskiego, Szczecin, pp. 9.
17. Szymla, Z., (2005). *Podstawy badan rozwoju regionalnego (Basics of Regional Development Research)*. Zeszyty Naukowe WSE w Bochni, no 3, pp. 101-111.

CORPORATE SOCIAL RESPONSIBILITY: MEASURING AND REPORTING THE EFFECTIVENESS OF COMMUNITY INVOLVEMENT ON THE BASIS OF THE LBG MODEL

Agnieszka Parlinska¹, PhD; **Ewa Stawicka**², PhD
^{1, 2} Warsaw University of Life Sciences (WULS – SGGW)

Abstract. Corporate social responsibility is increasingly becoming the only way to sustainable development as well as the basis for competitiveness through factors such as the strengthening of brand reputation, attracting and keeping talented employees, an increase in efficiency, cost savings, meeting the expectations of society and creating new opportunities for business and contributing to economic growth. In connection with the necessity of the implementation of the sustainable development, business becomes aware of the executor of social objectives and business benefits. The objective of this paper is to introduce indicator the London Benchmarking Group (LBG) as a practical tool used in business to measure the costs and effects of social commitment of companies on the market. The analysis of the literature, simple statistical methods and case studies of several best practice applications of the LBG on the market were the research methods used in the paper. Special attention has been paid to the aspect of how the LBG model enables the evaluation of the costs and effects involved in companies actively participated in the model within years 2013-2016.

Key words: corporate social responsibility, indicator, social commitment, efficiency.

JEL code: O35, Q01

Introduction

Corporate social responsibility is a challenge in the framework of the implementation of the concept of sustainable development. In 2015, the UN General Assembly adopted 17 objectives of Sustainable Development Goals (SDG) for years 2015-2030 (Agenda 2030). On the one hand, sustainable development goals create the chances and opportunities and, on the other hand, become a necessity on the market. Practices of Corporate social responsibility (CSR) are seen now as one of the important elements in the implementation of the SDG and at the same time affecting the financial result. More and more entrepreneurs take action on behalf of their stakeholders and communities, treating them not as a cost but as an investment. At the same time, increasing awareness and understanding of the monitoring how the level of the companies' involvement in the community and environmental actions turn into profits (Waddock & Graves, 1997).

One of the global standards for measuring corporate investments and philanthropy is the London Benchmarking Group (LBG Model). The LBG measuring frames are used by organizations worldwide to an effective measurement, reporting, and transfer of their social contributions and investments. The essence of the model is measuring the effectiveness of community action by reference results and effects to costs. The use of standardized tools allows comparing the effectiveness of its operations on the background of the industry or market.

The objective is to provide meter the LBG London Benchmarking Group as practical tools used in business to measure the costs and effects of social commitment of companies on the market. The methods used in the paper are: the analysis of a wide range of literature as well as several case studies of good practice application of the LBG on the market. The research focuses on the evaluation of best practices from a range of community investment in corporations in various sectors and countries. In the context of the challenges of global and sustainable development, good practices in the field of social and environmental aspects designate significant and measurable goals for the future. Data used in analysis were taken from the LBG's international network and provided the deepest set of benchmark data of companies actively participated in the LBG model within years 2013-2016. This depth of coverage helps to identify trends in community

¹Corresponding author. Tel.: +48 22 5934194, agnieszka_parlinska@sggw.pl

²Corresponding author. Tel.: +48 22 5934182, ewa_stawicka@sggw.pl

investment and to see how the companies that lead the field are taking on new approaches and measurement processes.

Research results and discussion

1. The criteria for the effectiveness of CSR

Corporate social responsibility is the positive impact that the company has on the surrounding community through its principal activity. This requires from them enforcement of law, ethical and international standards (Abou-El-Fouth, 2016). In turn, the European Commission's statement claims that CSR is a concept whereby companies voluntarily take account of social and environmental issues in their business and relations with stakeholders (Statement of the Commission..., 2011).

According to S. Sysko-Ryan, P. Roszkowska and A. Niedzwiecka, corporate social responsibility is an essential part of doing business in corporations that have enormous economic, technological, political, socio-cultural and ecological resources. This power is connected with responsibility for different aspects, such as:

- economy, which is above all control over the financial and technological resources, also it is related to the influence on the development and acquisition of new technologies,
- political manifests ensuring for company favourable legal regulations,
- marketing power, which is evidence of the socio-cultural changes effected by the operation of the entity.

More over ecological power is first of all resources that an enterprise has to protect the environment or ignore social expectations towards it (Sysko-Ryan, 2012).

According to the ISO 26000, "Guidance on social responsibility" CSR is a responsibility of the organization incurred by it in connection with the undertaken decisions and actions impacting on society and the environment. This responsibility should be ensured by the ethical and transparent conduct, which affects sustainable development, including health and prosperity of society, respects the expectations of stakeholders. At the same time, it should be in accordance with applicable law and consistent with the international standards (ISO 26000:2010).

The idea of sustainable development encourages more effective planning of the future and anticipating the consequences of their decisions and finding alternatives in case of failure. Corporate governance revolution has made the main theme of shareholders and boards interests are no longer only profits and their personal benefits. As a result, they began to ask what exactly a business is and how they should properly lead economic entity. The entities are trying to find a balance between the expectations of the Board of Directors and shareholders and other interested groups.

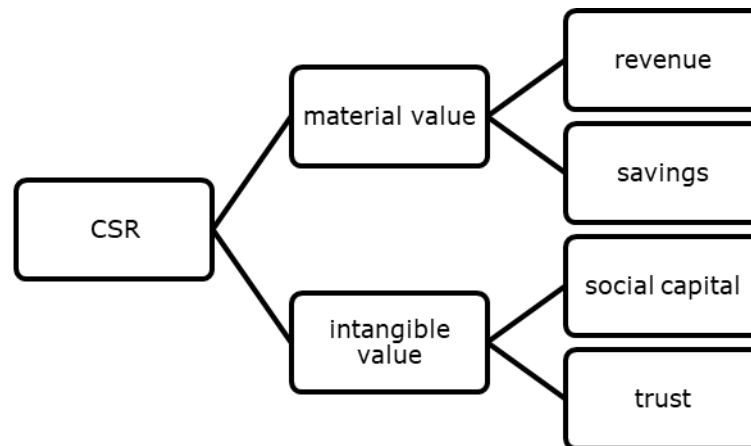
Nowadays the concept of CSR becomes of more strategic importance. From year to year, companies are interested in implementing into their business principles of social responsibility. Therefore, there is a need to measure the effectiveness and impact of the activities undertaken by them. Efficiency is often equated with the economy.

In the case of social responsibility, it can be defined as a situation when the obtained effects of a specific action exceed allocated costs to its implementation and the results of undertaken actions are described by the relation of the obtained effects to the expenditures incurred.

At the same time, what we believe to be effective, must be in some way related to the previously established objectives (Stawicka, 2017).

¹Corresponding author. Tel.: +48 22 5934194, agnieszka_parlinska@sggw.pl
²Corresponding author. Tel.: +48 22 5934182, ewa_stawicka@sggw.pl

Measuring the countable effects is potentially easy. It is more difficult to estimate the intangible benefits, such as social capital gain or social change. In this context, the tools to measure effectiveness are constantly developing, because it's hard to swap the effects in the material sphere on specific financial data (Figure 1).



Source: FOB (2011) Mierzenie efektywnosci i wpływu społecznego działań CSR (Measuring The Effectiveness And Social Impact Of CSR Activities). Forum Odpowiedzialnego Biznesu, Warszawa. p. 4.

Fig. 1. The Effectiveness of CSR

The most popular and still developing measures of corporate social responsibility are: indicators of the Global Reporting Initiative (GRI), ISO 26 000 and the London Benchmarking Group Model. However, the most commonly used in the world-standard management, measurement and reporting the effectiveness of social involvement is the LBG model.

The LBG model was formed in 1994 in the UK as the initiative of large companies that want to organize and mature to manage social programs and measure their effectiveness. It allows measuring not only the overall company's commitment, but also verifies what impact it will leave in long-term on the structure of the organization and its immediate environment. The LBG model is also a measure of efficiency and social commitment and the benefits of short-term and long-term impact from the perspective of business and societal benefit. In practical application, it allows also to measure in a holistic manner the incurred outlay by the company on social engagement, short term results and long term effects of this commitment.

2. The LBG model in practice

The LBG model allows calculation of the value of various resources involved in community activities, such as: provided products, working time of employees, volunteers, measuring the effectiveness of community action and the evaluation of short and long term benefits for the company of their implementation, improving the quality and transparency of reporting commitment society. Also it includes information about management and promotion cost related to the implementation of community action by the company, increasing the efficiency of the management of the different forms of social engagement of the company, the comparison – according to different criteria, community activities on the background market and industry. The LBG allows for accurate and comprehensive calculation of the value of the overall community involvement, and so the expression in monetary terms (in USA dollars or other currency), total costs/expenses incurred by the company in connection with the implementation of the community activities. Thus, not only the provided amounts in individual donations, but also the values of working time spent by employees on volunteer work or the cost of managing the different projects. The LBG model is also

¹Corresponding author. Tel.: +48 22 5934194, agnieszka_parlinska@sggw.pl
²Corresponding author. Tel.: +48 22 5934182, ewa_stawicka@sggw.pl

helpful in the process of evaluation system construction of community activities to measure the effectiveness of implemented activities in social as well business perspective.

The principle of the model and its main objective is to measure the effectiveness of community action by reference their effects and results to the incurred costs. This allows for comparison of the effectiveness of actions in relation to other companies or industries (Table 1).

Table 1

The scope of the LBG model

Input	Outputs	Impacts
What is contributed?	What has been achieved?	What changes we have made?
The company resources used in the framework of the implementation of the community activity; <ul style="list-style-type: none"> ▪ How? Cash, time, in-kind management costs; ▪ Why? Investments, donations, commercial initiatives; ▪ Where? Location of activity; ▪ What? Area of social problems (education, health etc.). 	Additional measures obtained in the framework of the activities carried out, Number of persons supported; Benefits and business achievement of the commitment; <ul style="list-style-type: none"> ▪ Community outputs -the number of people covered by the support; ▪ Additional benefits such as. support obtained in addition to other entities; ▪ Business outputs -positive information about the company in the media. 	Long-lasting social change by the actions of the company; <ul style="list-style-type: none"> ▪ Community impact-social change – proof of the change; ▪ Business impact – proof of the long-term benefits to the company in connection with the commitment.

Source: author's calculations based on Driving Community Investment. LBG Measuring Community Investment. 2016 Annual Review.

Practical application of the LBG model allows supporting the process of managing social programs. Key benefits of the LBG model can be considered: a full understanding of both the scale and value of social involvement; the possibility of a comprehensive assessment of the achieved results; better manage of social programmes; the ability to make better decisions regarding future social programs and improved communication on social involvement from both inside and outside the organization (Greszta, 2010).

The following tables contain results of the analysis across the LBG's international network and so provide the deepest set of benchmark data within years 2013-2016. This depth of coverage helps to better identify trends in social investment and see how the companies that lead the field are taking on new approaches and measurement processes. Among over the 130 thousand of countries where businesses in the LBG's network are making contribution more than 50 % of companies are located in Europe and mainly in Great Britain. Until the year 2015, there can be observed the incising number of the companies in this network. However, from the 2016 the number of businesses actively participated in the benchmark was decreasing. In 2013 among companies participated in the LBG's annual benchmarking exercise a total contribution was 2.6 billion dollars, equivalent to an average contribution of 655 of dollars for each employee. The higher level of the total contribution was noticed in 2015 - 3.6 billion dollars. Companies are getting smarter about the management of their community programs. The LBG's rich input dataset shows how and to what extent things are changing. From the basics of how companies contribute – cash as the lead, followed by in kind giving through to sectoral differences and the top social focus area: education and health. Moreover, rising emphasis on strategy with about 79 % of community investment and commercial initiatives in the community can be observed in each of researched years (Table 2).

Table 2

Overview of organizations' investment in communities - The inputs

Years	2013	2014	2015	2016
Companies LBG				
Number of companies	109	111	173	168
Contribution				
Total contribution (bn \$)	2.6	2.5	3.6	3.3
Average contribution per employee \$	655	549	639	639
Average contribution as % of pre-tax profit (%)	1.7 %	1.2 %	1.1 %	1.04 %
What members support?				
Health	24 %	36 %	22 %	19 %
Education and young people	26 %	23 %	35 %	33 %
Others	50 %	41 %	43 %	48 %
Why members contribute?				
Community investment and Commercial initiatives in the community	68 %	73 %	80 %	79 %
How members contribute?				
Cash	60 %	56 %	67 %	69 %
In-kind	27 %	29 %	20 %	7 %
Time	7 %	8 %	7 %	18 %
Management cost	6 %	7 %	6 %	6 %

Source: author's calculations based on LBG's International Report 2013, 2014, 2015, 2016

Measuring output means determining what happens as a result of community contributions. It's an opportunity to take the temperature of engagement and see some results. The numbers of people reached, the organizations supported or the additional funds brought to community programs from sources such as employees or customers are all markers by which companies in LBG can assess their progress. Within the years 2013-2015, decreasing number of beneficiaries and increasing number of employees involved and supported organization in the LBG network can be noticed (Table 3).

Table 3

Overview of what has been achieved? - The outputs

Years	2013	2014	2015	2016
Output				
Total beneficiaries (m)	93	95	93	65
Supported organizations	77 000	186 000	260 000	203 000
Employees involved	525 000	639 000	600 000	651 000

Source: author's calculations based on LBG's International Report 2013, 2014, 2015, 2016

Measuring impact is about understanding change. LBG enables and challenges companies to establish how they effect change in the people and the organizations that they help, as well as the employees that support their programs. As a result, the culture is changing, with more companies assessing their programs to establish where and how they are having a genuine impact (Table 4).

All over the world there can be noticed several best practices applications of the LBG on the market. In this paper, three case studies of good practice in this area from three different countries were analysed: Hemel Hempstead, project ABBOTT FUND and Orange companies.

The important initiative by British producer of soft drinks is based in Hemel Hempstead. It is listed on the London Stock Exchange and is a constituent of the FTSE 250 Index. It produces soft drinks under its own name. This program is global partnership between Fruit Shoot, Right to Play and international events organizer Tough Mudder delivers a series of Fruit Shoot Mini Mudder

events for children across the UK, Ireland and the US. The events reinforce the importance of play and the power of teamwork. In addition, for every child that signs up, Fruit Shoot Mini Mudder makes a donation to Right to Play, a charity which transforms the lives of over one million disadvantaged children across Africa, the Middle East and Asia through the power of sport and play. Since its inception in February 2015, Britvic has contributed over £15.000 and leveraged nearly another £3000, benefitting 512 children facing adversity. Right to Play has put these funds towards activities which help children acquire important skills around teamwork and help build a brighter future for them and their communities. It also generated much positive PR with thousands of in-store retailer displays and online likes on social media (www.britvic.com).

Table 4.

Overview of what changes we have made? - The impact

Years	2013	2014	2015	2016
How do people benefit?				
Positive changes in behaviour	44 %	66 %	41 %	31 %
Improved their well-being	39 %	43 %	21 %	
Acquired new skills	18 %	22 %	13 %	
How do organisations benefit?				
Improved existing/delivered new services or products	67 %	43 %	28 %	36 %
Spend more time with or reach more clients	40 %	25 %	23 %	
Increase their profile	38 %	31 %	30 %	
How do employee volunteers benefit?				
Improved their job-related skills	39 %	35 %	48 %	41 %
Changed behaviour/outlook	60 %	62 %		59 %
Improved life skills	57 %	35 %		58 %

Source: author's calculations based on LBG's International Report 2013, 2014, 2015, 2016

The next example is project ABBOTT FUND from the USA. This program has supported 663 events to provide after-school science education for under-resourced communities. It delivers vital educational science opportunities, in an informal setting, encouraging young people to be more proficient in STEM – providing a path to a promising future. Abbott and the Abbott Fund contributed over \$47m in resources, including employee time and in-kind support to all STEM programs and exhibits, including Family Science and Operation Discovery. Over 260 000 young students and their families have been involved with hands-on programming facilitated by Abbott scientists, engineering and other volunteers. The programs are replicable and sustainable, and participating teachers and parents have expressed increased ability and comfort in talking to students about STEM and STEM related careers with 97 % of students reporting they were more interested in science after participating (www.abbott.com/contact.html).

Also Polish company Orange is committed to increasing the number of social programs, and hence more and more resources are spent on community activities. The Orange Foundation operates where there is a sharing of knowledge, competencies and positive energy with others. The volunteers are involved in the programs of the Foundation and a variety of other social initiatives. The Foundation offers them organizational, substantive and financial support. The company improved employee volunteering programs, conducting satisfaction surveys and employee expectations. The examples of their actions are:

- In 2013, implemented program "Safe Kids", which was allocated \$ 674 450, and Orange for libraries-5.6 mln;

¹Corresponding author. Tel.: +48 22 5934194, agnieszka_parlinska@sggw.pl
²Corresponding author. Tel.: +48 22 5934182, ewa_stawicka@sggw.pl

- "The Orange Labs" has gained popularity. The Labs are activities in which the initiators are working together? /have joined in? an initiative group, e.g. learning programming for children, musical workshops, intergenerational, jointly create board games, language courses, photography workshops, activities related to regional traditions and many others.

Initiatives are targeted at various audiences: children and youth, people with disabilities, young mothers, senior citizens. The Orange company systematically collects information from beneficiaries and local environments, to develop such projects that best match their needs.

Given the wide range of programs, communities with the LBG are able to show a comprehensive image of the involvement of companies. It can be seen, where financial support can be effectively supplemented with other elements, such as services that allow to achieve much better social results.

All of these good practices often are treated as a social innovation. Their effectiveness refers to the economic dimension, but very often has a dimension that returns after years in the form of social change. It specifies the effect of measures to change attitudes, awareness, changing lifestyles, commitment, improving the quality of life and the environment. Also it gives inspiration for other companies how and what for they can implement by? /applying? CSR and the LBD model.

Conclusions, proposals, recommendations

- 1) In the framework of the sustainable development concept complementation, there is increasing the importance of specific practices that improve the quality of life for people and environment. On the one hand, sustainable development goals make up the business chances and opportunities and, on the other hand, become a necessary on the market. Responsible actions have increasing importance as a social innovation is seen as element of building competitive advantage and at the same time affecting the financial result.
- 2) Currently, some barriers to sustainable development, climate change, demographic problems (the ageing of the population) can be surmounted only through innovation. Therefore, CSR is seen as a process and strategy for resolving the most difficult social problems. The entrepreneur shall take action on behalf of their stakeholders and communities, treating them not as a cost but as an investment. At the same time, increasing awareness and understanding of the monitoring of the extent to which the involvement of companies in the community and environmental actions translates into profits.
- 3) On the market, there can be observed a lack of universal tool or model that can be implemented in company in order to measure the effectiveness of the social commitment of companies and economic effect. One of the helpful tool that allows for the calculation of the value of the company's social commitment is the LBG model. It is based on standardized principles and tools to measure different forms of involvement (financial, in-kind, volunteer work and management costs). Therefore, there is a system that measures the effectiveness of social commitment in view of the short-term benefits and long-term impact from the point of view of the company, and benefits for society. This may mean that the LBG model can be considered not only as one of the effective tools to measure the commitment of the company. It can be also as a verifier of long-term commitment impact to one's own enterprise structures and direct neighbours.

Bibliography

1. Abou-El-Fouth, H. (2016). *Corporate Social Responsibility in Banks; What does it mean?*. <http://www.linkedin.com/pulse/corporate-social-responsibility-banks-what-does-mean-abou-el-fotouh.html>. Access: 02.02.2018.
2. Elkington, J. (2004). *Enter The Triple Bottom Line. The Triple Bottom Line: Does It All Add Up*, Volume 2004, 11(12), pp. 1-6.
3. Greszta, M. (2010). *Pomiar efektywnosci. Zaangazowanie społeczne w odpowiedzialny biznes (Measurement of Effectiveness. Social Involvement in Responsible Business)*. Harvard Business Review Polska, No. 3(85), marzec, p. 4.
4. Waddock, S. A., Graves, S. B. (1997). *The Corporate Social Performance- Financial Performance Link*. Strategic Management Journal, 18(4), Volume 1997, pp. 303-319.
5. *Agenda 2030*. www.mr.gov.pl/strony/zadania/polityka-rozwoju-kraju/agenda-2030/. Access: 30.01.2018.
6. Komunikat Komisji do Parlamentu Europejskiego, Rady Europejskiego Komitetu Ekonomiczno-Społecznego i Komitetu Regionów. *Odnowiona strategia UE na lata 2011-2014 dotycząca społecznej odpowiedzialności przedsiębiorstw (Statement of the Commission to the European Parliament, the Council of the European Economic and Social Committee and the Committee of the Regions. A renewed EU strategy for 2011-2014 regarding corporate social responsibility)* (2011). Bruksela. Access: 30.01.2018.
7. Stawicka, E. (2017). *Sustainable Development and The Business Context of CSR Benefits on The Polish Market*. Acta Scientiarum Polonorum. Oeconomia 2017, No. 16 (3), pp. 73-81.
8. Sysko-Romanczuk, S. , Roszkowska, P. , Niedzwiedzka, A. (2012). *Odpowiedzialność biznesu. Teoria i praktyka (Business Responsibility. Theory and Practice)*. Management and Business Administration No. 2/2012, pp. 26-40.
9. *International Organization for Standardization, ISO 26000:2010*, <https://www.iso.org/iso-26000-social-responsibility.html>. Access: 30.01.2018.
10. FOB (2011). *Mierzenie efektywności i wpływu społecznego działań CSR (Measuring The Effectiveness and Social Impact of CSR Activities)*. Forum Odpowiedzialnego Biznesu, Warszawa. p. 4.
11. *ABC of the Main Instruments of Corporate Social Responsibility, European Commission. Office for Official Publications of the European Communities, Luxembourg 2004*, pp. 35-37.
12. *Raport CSR Orange Polska (CSR Orange Polska Report) (2015)*. <http://www.raportcsropl.pl/wprowadzenie-do-raportu.html>. Access: 14.12.2017.
13. *The LBG Annual Review 2013*. Local Input, Global Impact. Access: 20.12.2017.
14. *The LBG Annual Review 2014*. Maximum Impact. Access: 20.12.2017.
15. *The LBG Annual Review 2015*. Community Investment for a Changing World. Access: 20.12.2017.
16. *The LBG Annual Review 2016*. Driving Community Investment. Access: 20.12.2017.

AN APPROACH OF PLS METHOD APPLIED TO MODEL THE RICE SELF-SUFFICIENCY OF PEASANT HOUSEHOLDS IN AT SINANANA MADAGASCAR

Manase Bezara¹, Dr., Salima Taibi², Dr.Hab

^{1,2} Ecole Supérieure d'Agro Développement International ISTOM.

Abstract. The aim of our study is to build a predictive model using data from survey studies. As the predictors were mostly qualitative variables, we applied an extension of PLS method. This work responds also to the need expressed by the Atsinanana agricultural region of Madagascar to strengthen the decision-making process in the fight against "no-self-sufficiency in rice" and the poverty in this locality. The study consists of constructing a simple scientific tool to improve the comprehension and to explain the links between permanent poverty and the main socio-economic factors: schooling, illiteracy, fragmentation of land, insecurity, isolation, demography) and to make effective the measures taken. The data is a random sample from a database collected in the 82 rural communes of Atsinanana by the students of the University of Toamasina and from the Campus Paysan project. We propose a Partial Least Square regression model of rice self-sufficiency. This study has helped to update the information on the subject and to deepen the knowledge on the issue. It is part of a search for improvement of statistical prediction methods by the PLS regression. We worked mainly with free software R.

Key words: peasant, multicollinearity, PLS method, model, self-sufficiency in rice.

JEL code: C38; Q01

Introduction

In this 21st century, the poverty rate is more than 70 % (*Dabat et al., 2001*). A situation has degenerated, as described in the 2016 World Bank report, which indicated for the principle Island, an alarming poverty rate of 92 %. Most of these poor people live in rural areas, depend on agriculture for their survival and are not self-sufficient in staple food, rice (*UPDR-FAO-CIRAD, 2001*).

In Madagascar, rural households face the scourge of widespread poverty. The enclaves of prosperity are rare. Studies have shown a certain correlation both between poverty and self-sufficiency in rice (*Dabat et al., 2001*).

In 2004, at the beginning of the Peasant Campus project *, the demand for rice for Malagasy national consumption indicated a gap of 200 thousand tons (*campus paysan project*). Then as a result of national effort, official data indicated an increase in production from 2007 to 2011, but the effort was not sustained. However, in 1970, Madagascar exported its rice production surpluses. Domestic supply satisfied domestic demand.

In 2017, the main problem in Madagascar was still the inadequacy of rice production, which appeared in several aspects: economic, political and religious. The records of the Ministry of Agriculture indicate that the country had 30 million hectares of uncultivated farmland in June 2017. Experts pointed out that the country has potential in terms of rice production but it's handicapped by the lack of control over the means of production.

In December 2017, Madagascar was on the verge of a socio-political crisis related to rice. Domestic production was in sharp decrease. The market price has seen an extremal peak of 2450 Ar / kg = 0.78 euro, with a *smic** equals 35 euros, and an average consumption 200 kg / year / Malagasy.

Questions have been raised: how to make Malagasy rice farming efficient? How to deal with this peasant hysteresis in terms of rice self-sufficiency?

The following two previous studies represent a real interest.

- The national agricultural census (*RNA, 2005*) establishes a diagnosis of the situation of farms in the Malagasy countryside. In fact, there is a permanent degradation of the areas resulting from

¹Corresponding author. E-mail address: m.bezara@istom.fr,

²Corresponding author. E-mail address: salima.taibi@unilasalle.fr

parcels fragmentation, the use of hand tools such as spades, machetes and sickles for more than 90 % of farmers. We can observe little use of hitching equipment, so on the one hand, the problem of insecurity and theft operations and the decrease of rural areas has finally damaged the desire of investment.

- The analysis of rural households in Madagascar focuses on such issues as isolation and poverty and analyses the reasons why there is this rural Malagasy poverty, and how to relate the poverty level of the rural household with certain factors including isolation?

These questions represent the basis of our study focused mainly on rice farmers in the eastern region of Madagascar, formerly well-off and dynamic.

We collected, processed and analysed data on the peasantry of the Atsinanana region and sought to build a model explaining the rice self-sufficiency of rural households by projection on latent structures.

1. Data collection

We used data from two sources:

- The survey carried out as part of the Master2-MIA-FacSc / Univ Toamasina 2015-2016, and carried out by groups of students from the Faculty of Science, in collaboration with the regional statistics service of the Atsinanana region;
- Data from the peasant Campus survey (2005-2006), see *Taïbi et al. 2008*.

We applied a probabilistic approach, the cluster sampling. From the 82 rural communes of the Atsinanana region, we drew a random sample of 3 communes from which we sent to all households practicing irrigated rice a questionnaire to be completed face-to-face.

We recorded an average return rate of about 35 % covering about 150 people, or around 30 households.

The variables measured are the income (or wealth) of the household in a year, the area harvested, the size of the household, the number of children (schooling, out-of-school), rice production, the level of self-sufficiency in rice, index of family literacy, landlockedness, isolation, security, ...).

2. Partial least square regression (PLS)

In fact, prediction problems often face the phenomenon of multicollinearity.

Correlations decrease the performances of modelling processes. Methods have been developed to overcome this problem Breiman (2001), Taïbi et al., (2010). Projection regression on latent structures or also by partial least squares is one of the most successful.

PLS is a method which performs to explain a set of Y target variables by a set of X predictors, using a construction-iterative process (*Wold et al., 2001*) that produces two sets of synthetic variables.

- One $(t_k)_k$, $k < \min(\text{card}(X), \text{card}(Y))+1$ from predictive variables, two by two orthogonal.
- The other $(u_n)_n$ resulting from the predictive variables Y, on which the condition of orthogonality is not necessary.

The point of articulation of the iterative process is to group at each step the pairs (t_k, u_k) such as Max cov (t_k, u_k) . These (t_k, u_k) we call "*pls components*" or latent structures.

¹Corresponding author. E-mail address: m.bezara@istom.fr,

²Corresponding author. E-mail address: salima.taibi@unilasalle.fr

3. Algorithm

Step 1: The first component pls, t_1 , is constructed from a specific linear combination of p centred explanatory variables x_j .

The coefficients of the linear combination are chosen in order to better summarize the explanations for a better explanation of the target Y .

This implies:

$$t_1 = \sum_{k=1}^p \omega_{1k} x_k$$

$$\omega_{1k} = \frac{\text{cov}(x_k, y)}{\sqrt{\sum_{k=1}^p \text{cov}^2(x_k, y)}} \quad (1)$$

We perform a model of simple linear regression of y on t_1

$$y = \frac{\text{cov}(t_1, y)}{\sigma_{t_1}^2} \cdot t_1 + y_1, \quad y_1 \quad (2)$$

is the residual vector.

Then:

$$y = c_1 \cdot \omega_{11} \cdot x_1 + \dots + c_1 \cdot \omega_{1p} \cdot x_p + y_1 = a_{11} x_1 + \dots + a_{1p} x_p + y_1 \quad (3)$$

The translation to a matrix writing gives us.

$$\omega_1 = \frac{X^t \cdot y}{\|X^t \cdot y\|}; t_1 = X \cdot \omega_1; c_1 = \frac{y^t t_1}{t_1^t t_1}; a_1 = c_1 \cdot \omega_1 \quad (4)$$

Step 2: We construct the second component pls t_2 , uncorrelated to t_1 , which explains the residual y_1 by a linear combination of x_{ij} regression residuals x_j variables on t_1 .

The procedure is identical to that of step 1 to have (t_2, w_2, c_2, a_2) .

Step k: This procedure can be continued by iteration on the residuals. The number k of pls t_k components to retain is determined by cross-validation.

4. Treatment and comments

Our comments are based on the indications of work of *Tenenhaus (1998, 2001)* and *Chavent et al. (2003)*, which will be focused on five pronunciations.

a-Total quality of regression and proportion of explained variance.

The first output of results points out the explicative performance of explicative and target variables in the building of latent variables, the number of which is limited by that of explicative variables.

Nevertheless, for targets, the calculated percentages express the explicative power of the model.

As part of our study, the first both constructed latent variables explain only 65.84 % of the information brought by all explicative variables. What implication for the four remaining latent variables with only 34.16 % of information.

This first result also shows that the model is of a rather good quality 72.74 % changeability of targets. Therefore, our research question on poverty is explained by explicative variables. If both first latent variables are kept, this performance is still equal to 67.17 %.

Let us note that, the consideration of all latent variables identifies this performance with coefficient of determination R^2 of the linear regression. In our case, $R^2 = 0.72$.

Table 1

Performance of the variables in explanation of latent factors

Latent Factor	Input variables (X)		Target Variables (Y)	
	Current X (%)	Cumulative X (%)	Current Y (%)	Cumulative Y (%)
1	43.442	43.442	55.256	55.256
2	22.407	65.849	11.92	67.176
3	19.599	85.448	1.152	68.329
4	3.937	89.384	3.293	71.621
5	5.402	94.786	0.699	72.32
6	5.214	100	0.053	72.374

Source: author's calculations, R software

b- Raw contribution in latent variables

The second output result, points out *raw link* (square correlation) of every attribute in latent variables. In our case, we see that four variables: *enclosed- insecurity- alphabetisation- exploited area* are strongly linked to the first latent variable. Their roles are therefore determinants in the explanation of this first Pls component.

Nevertheless, it's important to realise that at this level of the study, we can't state the real nature of the connection yet. We speak about absolute intensity of the link.

As for targets, we see that the variables: *degree of poverty, family ease, family income, self-sufficiency in rice* are explained well. Indicators in the output show us it: 77.55 % (degree of poverty), 68.48 % (family income), 64.75 % (self-sufficiency in rice).

Then, it was possible to quantify correspondence.



The second latent variable contains 11.4 % available information. The variables "*age of the head of household, size of household* are influential. For the target variable, *rice-rowing/ ha* is well explained. It is explicative of the poverty at the level of 11.92 %.

Concerning the third latent variable, the proportion of explained variance is 19.6 %. Some determination of the variable indication of schooling is pointed out. But third axis doesn't give enough explanation of poverty problem.

c- Sense of links and weight of variables

Loadings bring the sense of links in the logic of correlation sign. We think here that the upper absolute value 0.40 indicates a significant correlation.

At this level, we can comment *Pls component* more correctly. The first Pls component is formed by a conjunction of in *alphabetisation* and *exploited area* and this, in opposition to variables *insecurity, is enclosed*. So, a household taught to read and write, exploiting a proper area living in a village not enclosed without too much problem of security is fortunate enough to be self-sufficient

in rice and boost its family income. The second PIs component is procreated by no opposition. A conjunction of *the age of the head of household* with the *size of household* for a better access to a proper *rice-growing* can also be seen.

It is also possible to comment on the indicator *weight*. For target variables, *weight* reflects their correlation with PIs component (target scores) to be predicted. It allows to estimate what is explained well by the PIs component. We cannot claim that the first PIs component explains the conjunction principally, *family income*, *self-sufficiency in rice*, and displays opposition with variable *degree of poverty*.

On the other hand, the *weight* of explicative variables indicates the role of each variable in the explanation of six PIs components. We can see that it's a duplication of X- loadings.

Variable importance in projection (VIP)

VIP indicator indicates the important level of explicative variables in the explanation of the target.

- $VIP \geq 1$, high level of explanation.
- $VIP < 0.70 + \text{coef}(\text{regress}) \sim 0$, less importance.

In the case of our study, we have aggregated the VIP indicators as shown in Table 2.

Table 2

VIP indicator

Input	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Age household	0.5551	0.7094	0.7115	0.6949	0.7152	0.715
Size household	0.5558	0.7045	0.7084	0.746	0.754	0.7537
Ind.Alphab	1.3869	1.2582	1.2476	1.2193	1.2134	1.2142
School Indic	0.4172	0.4367	0.5056	0.5517	0.5505	0.5503
Exploited area	1.4506	1.4679	1.4562	1.4277	1.4209	1.4207
Encl insecur	1.0868	1.0352	1.0292	1.0635	1.0609	1.0608

Source: author's calculations, R software

We can notice that, every column gives an account of the evolution of the role of corresponding attribute. The evolution of stocks in horizontal shows the influence combined by the PIs components. In our case, we kept 6 PIs components. We see easily across PIs component, the evolution and weight of 3 variables (*Alphabetisation indicator*, *Enclosed and insecurity*, *Exploited area*).

At the same time, the irrelevance of variable of schooling indicator is determined. This study has perhaps brought a partial explanation of the inflexible rate of descolarisation" recorded in Madagascar and it, in spite of efforts and plans of type «*ept*» (education for all people).

Model of prediction of self-sufficiency in Rice

We arrive at the level which allows us to establish a model of prediction by target and variables. It can be presented in *standardised coefficients* form. The second case applies to the variables of origin without any prior transformation. We note that standardization allows an interpretation convenient. It is possible to put attribute themselves in comparison with others by level of standard deviation.

Table 3

Parameters of the predictive model

		Target variable(s)				
Average		1.5909	0.3182	33.7273	3.0909	
Sd		0.8541	0.4239	7.1991	1.269	
Input	Average	Sd	Ricgro (t/ha)	SelfSufRice	Income/P	Degpoorness
Age household	37.6818	13.4142	0.15661	-0.007493	0.17437	-0.04387
Size household	4.5455	1.4385	0.062203	-0.108666	-0.564393	0.525006
Ind.Alphab.	0.4118	0.2777	0.137124	0.343618	0.302385	-0.245969
School Indic	0.3818	0.3049	-0.100946	-0.028718	0.437846	-0.335946
Exploi area	0.73	0.4826	0.564254	0.670596	0.68931	-0.54884
Encl.insecur	3.4091	1.2596	0.06307	0.023467	0.288747	-0.071989

Source: author's calculations, R software

Where the form of model :

SelfSufRice = 0.670596. Exploi. area + 0.343618. Ind Alphab + 0.023467.

Encl-Insecur – (0.108666.Sizehousehold + 0.028718.School Indic + 0.007493.Agehousehold)

It is possible to see that:

- In order of importance variables exploited area , alphabetisation indicator , enclosed - insecurity, have impacts on variable self-sufficiency in rice.
- Variables *age of the head of household, schooling indicator, number of children*, destabilise the self-sufficiency in rice.
- On predictive plan, if they augment for example the *exploited area* by 0.4826 ha, then the coefficient of *self-sufficiency in rice* grows for 0.670296×0.4239 .

Conclusions

The established *PLS* model allowed the leaders of the 82 communal localities to have a more rational approach to the problem of *no-self-sufficiency in rice*, a main source of rural poverty in the Atsinanana region, with a view to improving the decision-making performance. Three main factors have been identified: illiteracy, isolation, land fragmentation with some ambiguity about the behaviour of the schooling indicator. A judicious choice of communal samples, and an adapted technique of data collection the elaborated *PLS* model would have been otherwise efficient. The difficulties are many, insofar as our data are not able to point out particular problems related to each specific municipality, but also the inexistence of statistical archives that would have helped our work. Finally, the work triggered some form of awareness-raising process among all economic and strategic actors currently seeking to set up the *Atsinanana Region Observatory of Rurality* or the *University of Toamasina's Multidisciplinary Laboratory*.

Bibliography

1. Breiman, L. (2001). *Random Forests. Machine Learning*, 45, pp. 5-32.
2. Chavent, M., Patouille, B., (2003), *Calcul des coefficients de regression et du Press en regression PLS*. Revue Modulad. Vol. 30, pp. 1-9.
3. Dabat, M., Jenn-Treyer, O., Razafimandimby, S., Bockel, M.H, (2008), *l'histoire inachevée de la régulation du marché du riz à Madagascar*. Economie rurale. 303-305, pp. 75-89.
4. Doob, J.L. (1953) *Stochastic process*, Wiley, New York., p. 654.
5. Hubert, P. J. (1981) *Robust Statistics*, Wiley, New York.

¹Corresponding author. E-mail address: m.bezara@istom.fr,

²Corresponding author. E-mail address: salima.taibi@unilasalle.fr

6. Taibi-Hassani, S., Bezara, M., Rajaonarivelo, R., (2006). *Rapport de synthèse campus paysan*. Université de Toamasina, Esitpa, Région Atsinanana, Région Normandie, p. 28.
7. Taibi Hassani, S., Bezara, M. (2010). *La méthode des forêts aléatoires appliquée à l'observatoire de la ruralité dans le cadre du projet campus paysan à Madagascar. Pratiques et méthodes de sondage*, Dunod, pp. 209-213.
8. Tenenhaus, M., (2006) *Statistique : méthodes pour décrire, expliquer et prévoir*, Dunod.
9. Tenenhaus, M., (1998), *la régression PLS, théorie et pratique*. Edition technip, p. 254.
10. Tremblay, M.E., Lavallée, P., Tirari, M.E.H, (2011). *Pratiques et méthodes de sondage*. Dunod. p. 382.
11. Wold, S., Sjostrom, M., Eriksson, L., (2001). PLS-regression: a basic tool of chemometrics. *Chemometrics and Intelligent Laboratory Systems* Vol. 58 pp. , 109–130.

¹Corresponding author. E-mail address: m.bezara@istom.fr,

²Corresponding author. E-mail address: salima.taibi@unilasalle.fr

MARKETING AND SUSTAINABLE CONSUMPTION

CONSUMER BEHAVIOR AFFECTING FACTORS LEADING TO INCREASED COMPETITIVENESS DURING HOLIDAY SEASON

Anda Batraga¹, Dr.oec./prof.; Jelena Salkovska², Dr.oec./ assist.prof.;
Aija Legzdina³, Mg.Sc./admin.; Ilgvars Rukers⁴ Mg.Sc./admin.;
Santa Bormane⁵ Mg.Sc./admin.

Abstract. A modern consumer nowadays has availability of enormous variety of products and services to choose from when making purchasing decision. This leads to high competition, and companies have to seek new ways and more effective communication measures to successfully influence decision making process of consumers, as well as be creative to forecast consumer behaviour and increase market competitiveness. This is one of the reasons why behavioural research tools are important parts of management decision process. By being able to precisely define expected consumer activities, it is possible to forecast sales amounts, revenue, turnover, and also predict company development potential, especially in periods when sales hit high levels, for example, during holiday season. Consumer behaviour and actions are influenced not only by products, perception of brand values and effectiveness of marketing communication, but also by cultural, social, individual and psychological factors. Analyses of cross-interactions of these aspects allows to reveal which purchasing behavioural model is the most dominating one when buying goods or services.

The aim of this research is to determine the most influencing factors of consumers in Latvia during holiday season, as well as evaluating effectiveness behind various holiday marketing solutions, in order to make argumented marketing decisions to increase competitiveness of a company. **The research results** allow to indicate factors which affect consumption habits, and, based on that, proposals of upgrading marketing solutions for festive periods are revealed, including recommendations for improving marketing communication, appropriate methods of goods and services differentiation, methods of consumer segmentation and other aspects which sharpen competitive edge of a company.

Key words: consumer behaviour, marketing communication, marketing tools, competitiveness.

JEL code: M31

Introduction

A modern consumer nowadays has availability of enormous variety of products and services to choose from when making purchasing decision. This leads to high competition, and companies have to seek new ways and more effective communication measures to successfully influence decision making process of consumers, as well as be creative to forecast consumer behaviour and increase market competitiveness. This is one of the reasons why behavioural research tools are important parts of management decision process. By being able to precisely define expected consumer activities, it is possible to forecast sales amounts, revenue, turnover, and also predict company development potential, especially in periods when sales hit high levels, for example, during holiday season. This means that marketing plays the most vital role for company growth during holiday shopping period. During holiday time consumers get more sensitive and react to different marketing measures in a more specific manner.

Consumer behaviour and actions are influenced not only by products, perception of brand values and effectiveness of marketing communication, but also by cultural, social, individual and psychological factors. Analysis of cross-interactions of these aspects allows to reveal which purchasing behavioural model is the most dominating one when buying goods or services.

The aim of this research is to indicate the mix of right marketing strategy decision aspects in order to increase competitiveness of a company, by determining the most influencing factors of consumers in Latvia during holiday season, as well as evaluating effectiveness behind various holiday marketing solutions. In order to reach the aim of the research, four major **tasks** are

¹Corresponding author. Tel.: + 371 29224223; E-mail address: anda.batraga@lu.lv

²Corresponding author. Tel.: +371 29615933; E-mail address: jelena.salkovska@lu.lv

³Corresponding author. Tel.: +371 29127075; E-mail address: aija.legzdina1@gmail.com

⁴Corresponding author. Tel.: +371 25448199; E-mail address: ilgvars.rukers@gmail.com

⁵Corresponding author. Tel.: +371 26582423; E-mail address: santa.bormane@gmail.com

indicated: 1) analyse aspects and their components which influence and affect consumer behaviour, including decision making process during holiday period; 2) prepare corresponding questionnaire and conduct research among Latvian consumers; 3) analyse and interpret the research results in order to define and identify factors influencing consumer behaviour during holidays, as well as evaluate effectiveness of different holiday marketing measures; 4) develop proposals and recommendations for strategic updates of marketing communication tools and measures which would substantially sustain and increase market competitiveness.

Research object – factors influencing consumer behaviour. **Subject of research:** consumer behaviour affecting factors leading to increased competitiveness during holiday season

During the research, generally accepted quantitative and qualitative research methods of social sciences were used, among them the following ones: referral analyses of literature, content analyses, consumer poll and analyses of statistical results. In the consumer poll, citizens of Latvia were questioned, and their Christmas habits were observed. Christmas was chosen by purpose, since it is the most typical holiday period, thus the most appropriate to analyse holiday consumption specifics.

Based on the conducted research, paper collects and depicts influencing factors of consumers, and purchasing habits during festive period. As a result, it can be concluded, that general consumption has a tendency to increase during holiday season. It is facilitated by individual and psychological factors. It can also be **concluded** that holiday marketing turns out to be more effective, since return indicators are higher. **The research results** allow to indicate factors which affect consumption habits, and, based on that, proposals of upgrading marketing solutions for festive periods are revealed, including recommendations for improving marketing communication, appropriate methods of goods and services differentiation, methods of consumer segmentation and other aspects which sharpen competitive edge of a company.

Theoretical background

Identifying the criteria of consumers' preferences is important to any business when choosing its strategy for boosting the efficiency of competitiveness. It must be admitted that in a competitive economy system some facets of the entrepreneurship depend on knowledge about consumer behaviour. Contemporary authors such as Foxall G.R. and Sigurdsson V. emphasize that the consumer behaviour is foremost related to a human behaviour under natural conditions, taking into account the marketing measures (Foxall G. R., Sigurdsson V., 2013). This statement in fact resonates with an opinion expressed by authors Hatch G., Becker P. and Zyl M. Van, namely that consumer behaviour pertains not only to the very consumer and his decisions, but it closely correlates also to the environmental interaction and varied factors that influence behaviour, such as earlier mentioned marketing measures (Hatch G., Becker P. , Zyl M. Van., 2011b).

It is important to emphasize that during a decision-making about a purchase, a consumer is influenced not only by different external and internal factors, but also is basing his decisions on previous experience. Besides, authors like Kotler, Keller, Joshy and Jha stress that a positive final decision can be disturbed by two factors: negative feedback from other buyers and consumer's motivation to make a purchase and accept others' feedback. Consequently, it is crucial for a consumer to be aware of the importance of such purchase, extent of his readiness to make it and the underlying motivation (Kotler P. , Keller K. L., Koshy A., Jha M., 2012). Authors, such as Efraim

¹Corresponding author. Tel.: + 371 29224223; E-mail address: anda.batruga@lu.lv

²Corresponding author. Tel.: +371 29615933; E-mail address: jelena.salkovska@lu.lv

³Corresponding author. Tel.: +371 29127075; E-mail address: aija.legzdina1@gmail.com

⁴Corresponding author. Tel.: +371 25448199; E-mail address: ilgvars.rukers@gmail.com

⁵Corresponding author. Tel.: +371 26582423; E-mail address: santa.bormane@gmail.com

Turban, David King, Jae Kyu Lee, Ting-Peng Liang and Deborrah C. Turban share an opinion of factor segmentation (Turban, E., King, D., Lee, J.K., Liang, P. T., Turban, C.D., 2016). Consumer behaviour is in fact influenced by factors that can be broken down into two categories: external factors and internal factors, being influential and playing a decisive role in the consumer's decision-making process. Sub-sections of the segmentation may vary slightly, but the external factors that belong to general factors having an indirect impact on consumer behaviour actually shape the company's environment that can be good or not so good, as well as general market situation, which also impacts the consumer actions when making a decision about the purchase. Those factors can be anything from political, economic, technical to culture, subculture and social factors (Kotler P., Armstrong G., 2013).

External factors can be understood better and more precisely than the internal factors, as they reflect individual thoughts, wishes and actions of each individual. They are unique, have their particular features and personal development. This development happens through learning, human perception, memory that also affects and shapes the individual lifestyle and behavioral model of each person. A set of internal human traits manifests both in person's day to day life, decision-making process, lifestyle and when choosing a product or service, making a purchase to change the lifestyle or maintain the existing one (Hawkins D. I., Best R. I., Coney K. A., 2008). Factors affecting the internal environment of a person when making a decision about a purchase:

- 1) individual factors (personality, lifestyle, age, sex etc.);
- 2) psychological factors (motivation, perception, learning, beliefs, attitude).

The entire process involving the factors influencing the purchaser is dynamic since it is subject to an ongoing change. Some scientifically proven facts reveal that the consumer behaviour can be considered as taught. The taught discerns between a stimulus and a response where the consumer behaviour is a taught attitude, with the only difference being the way it was taught and what his earlier experience was (Padel S., Foster C., 2005). A set of consumer behaviour and choices made include both very simple and understandable behaviour models and very complicated ones. In order to have an in-depth study of the process, one has to answer particular questions to have a clear understanding of the idea, feeling, experience and action of the consumer. If all listed factors are identified we have come closer to our objective — to comprehend this complicated consumer behaviour having a direct correlation to the company's turnover, market share and competitiveness. Nowadays the market is very saturated; therefore, a great number of companies continuously compete with each other. In fact, the companies fight for the consumer demand and their money. Consumers literally are ones to lead the show and the decision-making is in their hands (Wilkinson N., 2005).

It is obvious that the competition marks contradictions related to overlapping of market participants' goals connected with customers coming from specific groups and target audiences. In a competition struggle, it is usually important to have a situation for achieving a goal where a market share is taken from the rivals under a condition that the total market does not expand (Kramer T., 2000). Meanwhile, other authors emphasize that, if a competition phenomenon is narrowed, all companies suffer due to their overlapping interests and fields of activities. Therefore, the evolution model principle — survival of the fittest — can be applied to the companies. So, if we are to look from such perspective the fundamental issues of business competition must start with

¹Corresponding author. Tel.: + 371 29224223; E-mail address: anda.batruga@lu.lv

²Corresponding author. Tel.: +371 29615933; E-mail address: jelena.salkovska@lu.lv

³Corresponding author. Tel.: +371 29127075; E-mail address: aija.legzdina1@gmail.com

⁴Corresponding author. Tel.: +371 25448199; E-mail address: ilgvars.rukers@gmail.com

⁵Corresponding author. Tel.: +371 26582423; E-mail address: santa.bormane@gmail.com

setting out the strategy. The better companies comprehend and know their consumers and buyers the more competitive they are. So it is crucial to comprehend the factors beneath the consumer behaviour in the most gainful periods of the year, when it is crucial to choose one's strategy that fits the consumers' wishes, needs and behaviour patterns (Vromen J.J., 2013).

Research results and discussion

A structured data collection by virtue of a survey was conducted to find out what are the factors affecting the consumer behaviour in a holiday season and consequently to evaluate the key factors to focus on in order to boost the marketing communication as well as to ensure a grounded marketing decision-making for the purpose of boosting the efficiency of competitiveness. Due to volume restrictions not all consumer-influencing factors mentioned in the theoretical section were addressed and only the most important ones were discussed. The survey included 406 respondents throughout Latvia. The basic task of the survey was to find out factors affecting the consumer behaviour in one of the most topical holiday seasons — Christmas. Sex distribution of the surveyed respondents: 57.39 % women and 42.61 % men. Youth under 18 years of age were excluded from the survey, assuming that they did not have any personal and constant income for buying Christmas gifts. Age distribution of the surveyed respondents are relatively proportionate; therefore, their replies can be tied in a positive correlation to the age factor.

Respondents were grouped by their income level: below minimum wage, minimum wage, between the minimum and average wage, average wage, above average wage and very high wage. The survey took place in 2017 when the minimum wage in Latvia was 380 EUR and the average wage was 859 EUR before taxes (Minimum wage rates, 2007). The results show that out of all respondents 17 % earn below minimum wage, 9 % earn minimum wage, 27 % earn between minimum and average wage, 20 % earn average wage, 25 % earn above average wage and 1 % has very high wage. 1 % selected "other" and marked that they do not have any income. For the purpose of more thorough summary, the respondents were asked to answer the question about their education level. 51 % of respondents had higher education, 25 % had vocational education and 24 % had graduated from the secondary school.

It is equally important to comprehend the consumer behaviour to understand whether the gifts are planned and purchased timely or they are more spontaneous, bought in the last minute relying on a chance to get something appropriate. It is crucial to know the periods for which the companies should have to intensify their marketing communication to boost their product or service sales. It can be concluded that the majority or 67.50 % of respondents bought gifts at the last minute (1-2 weeks before the holidays), yet 24.8 % of respondents told that they bought gifts timely. Even though the majority of respondents buy gifts at the last minute, the companies during holiday season have to think timely about their marketing communication and must communicate intensively. It is necessary because a consumer, when deciding on a gift at the last minute, would intuitively remember also the advertised offers.

The economic factor. This is one of the most important factors affecting the consumer behaviour and decision-making therefore respondents were asked about the amount of money spent for gifts. The major part or 43.60 % responded that they spend 51-150 EUR, and it helps us conclude that people either do not buy expensive gifts or their wage level is not that high to afford them. 29.06 % of respondents replied to this question saying that they spend 1-50 EUR and

¹Corresponding author. Tel.: + 371 29224223; E-mail address: anda.batruga@lu.lv

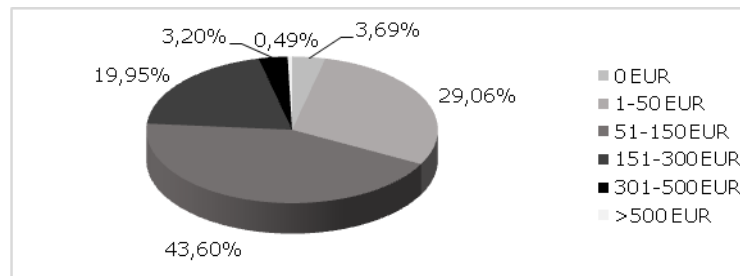
²Corresponding author. Tel.: +371 29615933; E-mail address: jelena.salkovska@lu.lv

³Corresponding author. Tel.: +371 29127075; E-mail address: aija.legzdina1@gmail.com

⁴Corresponding author. Tel.: +371 25448199; E-mail address: ilgvars.rukers@gmail.com

⁵Corresponding author. Tel.: +371 26582423; E-mail address: santa.bormane@gmail.com

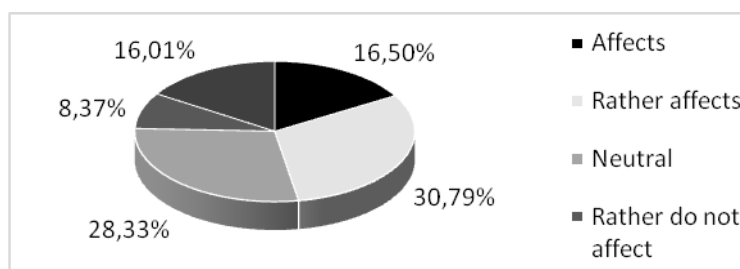
3.69 % of respondents told they do not buy gifts and a reason for that could be traditions or family habits, such as not to give presents to each other. 19.95 % out of all respondents indicated that during Christmas season they buy gifts worth 151-300 EUR and 3.20 % told that the total amount spent for gifts is 301-500 EUR. These respondents mainly have high correlation to the income level, and the majority of them are persons with average and averagely high income, and they perceive giving gifts as important act and wish to give joy with presents to their family and friends. 0.49 % of respondents told that they spend over 500 EUR for gifts. As can be concluded, this group of people have high income and they are respondents who find recipients' wishes to be crucial factor and do not pay attention to the product price (Figure 1).



Source: author's chart based on the survey conducted in October-December 2017

Fig. 1 How much money respondents spend on Christmas gifts

The political factor. Often an affiliation with some group or even a patriotic stance is very important when making a decision about a purchase. Figure 4 shows the replies of respondents and subjective assessment of how much their gift buying process is influenced by the local producers' offer. 30.79 % replied that the local producers' offer rather influences the gift buying process, 28.33 % were neutral regarding this factor, 16.50 % replied that the local offer affects their gift purchases, 16.01 % of respondents said that this factor has no impact and 8.37 % of respondents told that it rather does not have any impact. From given data we can conclude that the respondents' values and attitude towards the local producer vary (Figure 2). It is clear that the consumers who pay attention to the country of origin of products are more liable to make a decision in favour of the locally produced goods. Therefore, the companies targeting this criterion can direct their marketing communication with a special emphasis on said criterion, highlighting it as a unique sales argument.



Source: author's chart based on the survey conducted in October-December 2017

Fig. 2. Local brand/manufacture as an influencing factor on purchasing decision

In order to find out where a potential consumer should be addressed at best, one must know where the gifts are commonly purchased. More than a half of respondents or 57.65 % told they buy gifts in shops (traditional points of sale), 23.09 % buy gifts at Christmas fairs and only 15.14 % buy them in internet. 4.13 % chose "Other" (do not purchase, habits vary from year to

¹Corresponding author. Tel.: + 371 29224223; E-mail address: anda.batruga@lu.lv

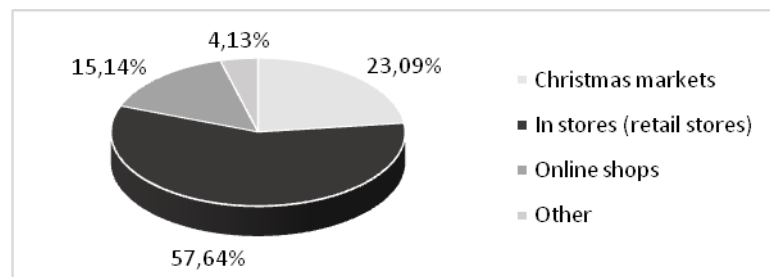
²Corresponding author. Tel.: +371 29615933; E-mail address: jelena.salkovska@lu.lv

³Corresponding author. Tel.: +371 29127075; E-mail address: aija.legzdina1@gmail.com

⁴Corresponding author. Tel.: +371 25448199; E-mail address: ilgvars.rukers@gmail.com

⁵Corresponding author. Tel.: +371 26582423; E-mail address: santa.bormane@gmail.com

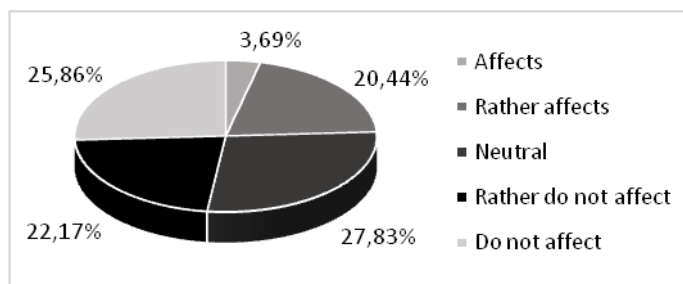
year or make DIY gifts). We can therefore conclude that the largest part of potential consumers can be met in the traditional points of sale where marketing activities would be most gainful as they reached and addressed the maximum number of buyers. Another essential factor of these points of sale are physical buying allowing to view the product in life before purchasing it. The producers selling only via internet should think more of addressing a consumer through contemporary communication channels in internet, such as social networks, or to consider a possibility to participate in Christmas fairs to reach out to more consumers (Figure 3).



Source: author's chart based on the survey conducted in October-December 2017

Fig. 3. Where respondents purchase their Christmas gifts

The environmental factor. Today increasingly more attention is paid to the environmental protection, prevention of pollution etc. Therefore, Figure 5 shows an extent to which people consider environmental aspects when buying their presents. Results show that the majority or 27.83 % of respondents treats this factor neutrally. Approximately 1/4 or 25.86 % of respondents do not bother if their product and/or its packaging is environmentally friendly. A slightly less number of respondents, i.e. 22.17 % told that this factor rather does no impact them. Only about 1/5 or 20.44 % of respondents are rather influenced by the fact that the product and/or package is environmentally friendly. The minority or 3.69 % are respondents that care for the environmental impact of the product and packaging (Figure 4). It leads to a conclusion that the major part of Latvian residents, when buying Christmas gifts, do not consider whether the product and/or packaging are environmentally friendly (only less than 1/4 of population pays attention to said fact). Therefore, the entrepreneurs should not aim at environmentally friendly packaging due to their marketing activities; it would rather be necessary for a company to position itself as socially responsible, but as one can see in the depicted results, most likely it will not influence consumer behaviour in a decision-making process.



Source: author's chart based on the survey conducted in October-December 2017

Fig. 4. Nature friendly goods/ packaging as an influencing factor on purchasing decision

The study reflects that the most efficient communication channels to address a consumer in the gift shopping period is internet 22.56 %, friends and acquaintances 21.04 %, showing that "verbal feedback" is still one of the most efficient and reliable sources. Also outdoor advertising is a

¹Corresponding author. Tel.: + 371 29224223; E-mail address: anda.batruga@lu.lv

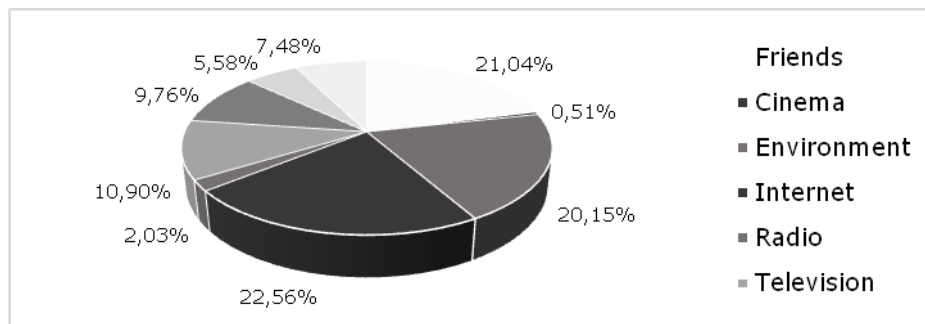
²Corresponding author. Tel.: +371 29615933; E-mail address: jelena.salkovska@lu.lv

³Corresponding author. Tel.: +371 29127075; E-mail address: aija.legzdina1@gmail.com

⁴Corresponding author. Tel.: +371 25448199; E-mail address: ilgvars.rukers@gmail.com

⁵Corresponding author. Tel.: +371 26582423; E-mail address: santa.bormane@gmail.com

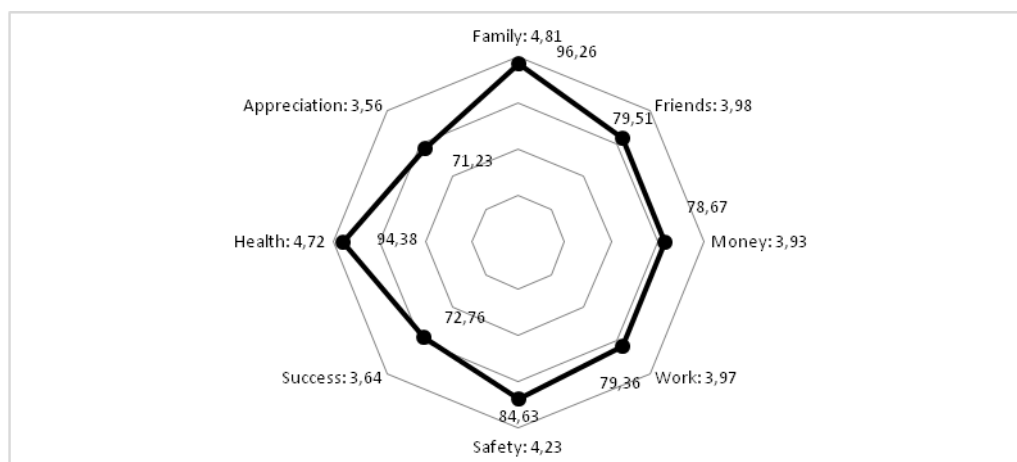
perspective and efficient information channel, marked by 20.15 % of respondents in their answers. Interestingly, TV ads have been marked merely by 10.90 % of respondents. Authors of the paper explain that during this period the advertising share is very intense and also the number of offered ads is very large, advertising times are very saturated with different advertisements, therefore consumers find it difficult to perceive the communication messages. They are followed by advertising in magazines with 9.76 %, newspapers with 5.58 % and cinema with 0.51 %. 7.48 % of respondents marked Other (do not buy, know a particular item in advance, individual approach to each receiver, think individually or rely on the mood). From the obtained data one can conclude that the companies should focus more on communication in internet and outdoor advertising as the main influence on the consumer behaviour in favour of gift shopping during the holiday season (Figure 5).



Source: author's chart based on the survey conducted in October-December 2017

Fig. 5. Most effective media channels for reaching Christmas gift buyers

In the concluding part of the research, authors looked at the individual value system of a person and the way it can change the habits of gift purchases; respondents were asked about their value system. Each factor in the question had to be rated by its importance (5 - relevant and 1 - irrelevant). By analysing the obtained data, each factor with the attributed relevance assessment was translated into percentage where 100 % express relevance and 0 % — irrelevance. The obtained results reveal that the most important factor is family with 96.2 %, and it correlates with the fact that the majority of respondents celebrate Christmas with their families. The second most relevant factor is health, receiving 94.38 %, and safety takes the third place with 84.63 %. The most relevant factors are related to intangible values (Figure 6).



Source: author's chart based on the survey conducted in October-December 2017

Fig. 6. Value system of respondents

¹Corresponding author. Tel.: + 371 29224223; E-mail address: anda.batruga@lu.lv
²Corresponding author. Tel.: +371 29615933; E-mail address: jelena.salkovska@lu.lv
³Corresponding author. Tel.: +371 29127075; E-mail address: aija.legzdina1@gmail.com
⁴Corresponding author. Tel.: +371 25448199; E-mail address: ilgvars.rukers@gmail.com
⁵Corresponding author. Tel.: +371 26582423; E-mail address: santa.bormane@gmail.com

Results of Figure 7 reflect values that the consumers hold dear and hence they reflect also directions where the companies can communicate and build their strategy. Since 96.2 % of the respondents placed family as the most important value, it is one of the factors to be taken into account when offering products and services during the holiday season.

Conclusions, proposals, recommendations

- 1) In a competitive economy system, some facets of the entrepreneurship depend mainly on knowledge about consumer behaviour.
- 2) Notwithstanding the fact that the majority of the respondents bought gifts at the last minute, the companies must think and plan marketing communication timely during the holiday season in order to boost their competitiveness, because it takes time to create a qualitative message and to deliver it to a consumer.
- 3) The income level of the respondents closely correlates to the consumed amount of money for gifts — the higher the income, the larger the amount spent for gifts.
- 4) Consumers who pay attention to the country of origin of products are more liable to make a decision in favour of the locally produced goods. Therefore, companies targeting this criterion can direct their marketing communication with a special emphasis on said criterion, highlighting it as a unique sales argument.
- 5) The most efficient communication channels to address a consumer in gift shopping period is internet (22,56 %) as well as friends and acquaintances (21,04 %). The companies should focus more on communication in internet and outdoor advertising as the main influence on consumer behaviour in favour of gift shopping during the holiday season.
- 6) Values that are relevant for consumers reflect also directions where the companies can communicate and build their strategy to improve the efficiency of competitiveness. Since 96.2 % of respondents selected family as the most important value, it is one of the factors to be taken into account when offering products and services during the holiday season.
- 7) As the consumers are ready to spend more during the holiday seasons, they have the biggest potential for companies' profit and they should take an advantage of them to increase their turnover.
- 8) Companies should think about locations where to reach out for potential customers; one of the most efficient communication channels to use is traditional points of sale, paying a special attention to the on-site measures at stores where gifts for this period are most frequently purchased thus reaching the maximum mass of potential buyers.
- 9) When elaborating the research further, it would be useful to look at the most characteristic gift categories for each age group; it would help to comprehend the consumer behaviour and trends to a deeper level and the companies could understand suitability of their product or goods for each age group and accordingly make their communication range more efficient.

Bibliography

1. Foxall, G. R., & Sigurdsson, V. (2013). *Introduction to the Special Issue: Consumer Behavior Analysis: Behavioral Economics Meets the Marketplace*. The Psychological Record, 63(2), pp. 231–238.
2. Hatch, G., Becker, P., & Zyl, M. Van. (2011b). *The Dynamic African Consumer Market: Exploring Growth Opportunities in Sub-Saharan Africa*. Accenture. p. 44.
3. Hawkins, D.I., Best, R. I., Coney, K. A. (2008). *Consumer Behavior*. United States: John Wiley & Sons, p. 576.

¹Corresponding author. Tel.: + 371 29224223; E-mail address: anda.batruga@lu.lv

²Corresponding author. Tel.: +371 29615933; E-mail address: jelena.salkovska@lu.lv

³Corresponding author. Tel.: +371 29127075; E-mail address: aija.legzdina1@gmail.com

⁴Corresponding author. Tel.: +371 25448199; E-mail address: ilgvars.rukers@gmail.com

⁵Corresponding author. Tel.: +371 26582423; E-mail address: santa.bormane@gmail.com

4. Kotler, P., Armstrong, G. *Principles of Marketing*. (2013). Thirteenth Edition. United Kingdom: Pearson Education, pp. 191-193.
5. Kotler, P., Keller, K. L., Koshy, A., & Jha, M. (2012). *Marketing Management* Thirteenth Edition. New Delhi: Pearson Education, p. 816.
6. Kramer, T. (2000), *Podstawy marketingu*. Warszawa: PWE, p. 39.
7. Minimalas algas likmes (*Minimum wage rates*) (2017). Retrieved: <https://www.vid.lv/minim257l257-alga.html>. Access: 12.12.2017.
8. Padel, S., Foster, C. (2005). *Exploring the Gap between Attitudes and Behavior: Understanding why consumers buy or do not buy organic food*. British Food Journal, p. 606.
9. Turban, E., King, D., Lee, J.K., Liang, P. T., Turban, C.D. (2016). *Electronic Commerce. A managerial and social networks perspective*. Eight edition. New York: Springer. p. 791.
10. Vromen, J.J. (2013). *Competition as an Evolutionary Process: Mark Blaug and evolutionary economics*. Erasmus Journal for Philosophy and Economics, 6 (3), pp. 104-132.
11. Wilkinson, N. (2005). *Managerial Economics. A Problem-Solving Approach*. Cambridge University, p. 556.

¹Corresponding author. Tel.: + 371 29224223; E-mail address: anda.batruga@lu.lv

²Corresponding author. Tel.: +371 29615933; E-mail address: jelena.salkovska@lu.lv

³Corresponding author. Tel.: +371 29127075; E-mail address: aija.legzdina1@gmail.com

⁴Corresponding author. Tel.: +371 25448199; E-mail address: ilgvars.rukers@gmail.com

⁵Corresponding author. Tel.: +371 26582423; E-mail address: santa.bormane@gmail.com

DIGITAL PROMOTION AS SOLUTION FOR INTEGRATED MARKETING COMMUNICATION IN BUSINESS

Santa Bormane¹, Mg. oec. / Candidate for Doctoral Degree in Economics;
Anda Batraga², assoc. prof. / Dr.oec.

^{1, 2} University of Latvia, Faculty of Business, Management and Economics

Abstract. The increasing development of integrated marketing communications, based on the use of the Internet in communication with consumers, the growth of technologies, changes in the form and nature of communication and other trends, enhances the role of digital marketing. The article presents the integrated marketing communications which businesses apply in their marketing strategy and which nowadays require modifications in management. Particular attention is devoted to digital promotion in integrated marketing communication usable as a tool for raising the level of customer attraction and loyalty. The goal of the research was to assess integrated marketing communications in the context of digital promotion.

The research confirmed the initial hypothesis that the use of integrated marketing communications in digital promotion raises the level of consumer involvement and facilitates the exchange of information. There have been conclusions and proposals drawn up based on the results. The study is based on scientific literature and the following quantitative and qualitative methods were used to accomplish the goals and objectives: interrogative, comparative, grouping, graphical, evaluative and descriptive. As part of the research, a poll of leading specialists from Latvian food retail chains was conducted in 2017.

Keywords: integrated marketing communication, integrated marketing communication tools, digital promotion, sustainable marketing, sustainable development.

JEL code: M31 Marketing

Introduction

The use of integrated marketing communications is developing based on the use of the Internet in communication with consumers, the growth of technologies, changes in the form and nature of communication and other trends which enhance the role of digital marketing. Consumers nowadays require a different way of communication that ensures a convenient access to information through various channels at any time and any place with an option to get involved, share and express one's opinion, or join a social group, including listening to opinion leaders etc. Digital promotion as a set of integrated marketing communication measures in the context of sustainability and its use in the marketing strategy contributes to consumer awareness in observing the core conditions of sustainability and to changes in the public thinking and action, boosting not only the company's demand, but also the overall economic development, social responsibility, and environment preservation.

The **goal** of the research is to assess integrated marketing communications in the context of digital promotion. The **object** of the research is digital promotion as a set of integrated marketing communication measures, and the **subject** of the research is digital promotion tools in the marketing strategy of food retail chains. The **hypothesis** is that the use of integrated marketing communications in digital promotion raises the level of consumer involvement and facilitates the exchange of information. In order to reach the goal, the authors put forward the following **objectives** – to study integrated marketing communication and its development in digital promotion, to draw up an expert questionnaire for rating digital promotion as a set of integrated marketing communication measures and its impact upon demand at Latvian food retail chains, to conduct an expertise, to collect, analyse and evaluate data using generally accepted quantitative and qualitative **methods** of economic research – interrogative, comparative, grouping, graphical, evaluative, descriptive. The research is based on scientific papers published by Latvian and foreign

¹Corresponding author. Mob. phone: +371 26582423; E-mail address: santa.bormane@gmail.com

²Corresponding author. Mob. phone: +371 29224223; E-mail address: anda.batraga@lu.lv;

scholars, general and special literature, periodicals, and the MS Excel software was used for data processing and analysis.

Development of integrated marketing communication

Sustainable business lies upon management systems and tools that, instead of supporting a neoclassic business, transform it, with an increasing consideration of social and environmental factors. More and more companies face "the challenge of encompassing sustainability in their business, searching for opportunities to integrate in a global sustainable development," according to Sandra Morioka, Steve Evans and Marly Monteiro de Carvalho (2016).

The business management systems and their tools applied by businesses are means that differ in terms of complexity and ease of application and that are used to accomplish business targets, implement business processes, or improve operations. Entrepreneurs adopt a variety of business management tools, as "one cannot apply standardised identical performance criteria to all companies because each company is a universal formation characterised by belonging to a specific industry, organisational structure, management style, market share and other distinct features".

Manfred Bruhn and Stefanie Schnebelen (2017) point out that the definition of IMC has evolved and back in 1989 the American Association of Advertising Agencies defined IMC as a concept of marketing communication planning that recognises the added value of advertising agencies in a programme where a variety of strategic disciplines have been integrated – such as general advertisement, direct response, sales promotion and public relations –, by combining them to ensure clarity, consistency and a maximum effect of communication.

Maja Seric, Irene Gil-Saura and Durdana Ozretic-Dosen (2015) describe IMC as "a tactical and strategic consumer-oriented business process which is facilitated by the advancements of information and communication technologies (ICT) and which, based on information obtained from customer databases and through the coordination and synergy of various communication tools and channels, conveys a clear and consistent message to preserve a long-term lucrative relationship with customers and other stakeholders and to build and maintain the brand value".

Jelena Salkovska (2016) maintains that "the essence and process of IMC are related to: 1) *the integration of types of marketing communication* (advertising, sales promotion, public relations, sponsorship, direct marketing, interactive marketing, personal selling, exhibitions); 2) *the integration of distribution channels of marketing communication* (TV, press, the Internet, radio, outdoor and other channels); 3) *the integration of marketing activities* (product, price, distribution and placement, promotion); 4) *the integration of market participants* (manufacturers, suppliers, brokers, partners, direct marketing participants, consumers/buyers)".

Pursuant to this development, IMC is defined as a strategic and operational process that includes analysis, planning, organisation, implementation and supervision and is aimed towards distributing a concerted and consistent image of a company or a reference object by integrating the company's special sources of internal and external communications (Bruhn, M., 2008). Hence, the functions of IMC extend far beyond a mere integration and merging of communication activities in form (i.e. compliance with formal design principles such as fonts, sizes, colours, core visual parameters), time (i.e. coordination of communication activities within and beyond planning periods) and content (thematic coordination by connection lines such as messages, arguments and statements) – it focuses on the management process for the integration of internal and external communication.

¹Corresponding author. Mob. phone: +371 26582423; E-mail address: santa.bormane@gmail.com
²Corresponding author. Mob. phone: +371 29224223; E-mail address: anda.batruga@lu.lv;

The evolution of the definition of IMC is related to its conceptual development which took place in the USA and Europe simultaneously, yet independently. The discussion of the progress of IMC in the scientific literature is based on six core aspects of content of the concept: 1) theoretical grounds where IMC concepts are based on communication and social science theories, the organisational theory, and others; 2) communication tools considering what mass media each IMC concept is oriented towards and what mass media it encompasses; 3) planning process, indicative whether the concept is based on a comprehensive and strategic planning process; 4) organisational and personnel aspects, indicative whether there are solutions offered for structural and/or process-oriented organisational and personnel issues in relation to IMC; 5) relationship orientation and online communications; 6) social media involvement (Bruhn, M., 2014).

Arvydas Bakanauskas (2004) opines that the communication process begins when two or more people (sender and recipient) come into contact directly or through such means as telephone, television, the Internet etc. and continue until the contact is terminated. One may have interest, which is affected by the other, and an intention to send him information. The goal is to make the other participant of the process receive and understand the information and react the way the sender wants him to.

Salkovska (2016) also notes that "in practice there are no strict borders between the two groups. For instance, advertisement (a TV ad with immediate response) or sales promotion (a client card) may be personal, and vice versa – direct marketing may end up mass in scale (for instance, due to ineffective use of a database). As concerns interactive marketing, the scale of its communication – personal or mass – entirely depends on the information sender's decision (for instance, an e-mail message is personal, but a regular banner is mass communication). However, the overall development trend of the marketing communication system, in the book authors' opinion, lies in an increased role of personal communications."

The idea of a concerted use of different marketing communication tools has become a recognised practice in the industry. With the evolution of IMC in progress, in the scientific literature the IMC paradigm has been addressed separately: 1) Kenneth E. Clow and Donald E. Baack (2002) treat IMC as an information technology system that enables storage and manipulation of voluminous customer data; 2) Anders Gronstedt (1997) presents it as using the Internet as information source, communication channel, deal facilitator and distribution tool; 3) Philip J. Kitchen and Don Edward Schultz (1997) discuss IMC as growth of the agency practice – internationalisation, globalisation, customer reflection, organisational learning and practice driven by customer needs, multi-country, multi-office structures and networks; 4) Ali Kanso and Richard Alan Nelson (2002) see IMC as a need for brands to become global and highlight it as advertisement localisation pressure; 5) Kitchen and Schultz (2000) find that "since the world has changed, so have the nature and forms of communication, therefore the practice of development and management of marketing and communications should change as well".

All these changes have been used to support the argument of the development of IMC. The early literature testified that IMC had aroused substantial interest in the marketing world. The article by Clark L. Caywood, Don Edward Schultz and Paul Wang (1991) suggests that most of the issues, philosophies and arguments covered are about 10 years old, so this is a relatively new and dynamic area of research, possibly still at the stage of early growth.

The development of the use of IMC is helped by the increased use of the Internet in communication with consumers, the development of technologies, changes in the form and nature

¹Corresponding author. Mob. phone: +371 26582423; E-mail address: santa.bormane@gmail.com
²Corresponding author. Mob. phone: +371 29224223; E-mail address: anda.batruga@lu.lv;

of communication and other trends that enhance the role of digital marketing. Integrated marketing communications, which businesses apply in their marketing strategy, require modifications in management, with digital promotion playing a key role in integrated marketing communications. For instance, a customer looking for a camera may do the information searching and consideration of alternatives in respect of the said product, or receive an attractive offer, go to the shop and take advantage of it. This is why online activities on Facebook, Twitter, YouTube or similar sites make a good communication platform, reaching the customer at any time and place and drawing attention through the interactive form of presentation. Still, as pointed out by Ake Finne and Christian Gronroos (2017), the perception of a given camera brand might be based on previous experience, probably from borrowing one, which has been positive. In such cases the communication process does not include a company source.

Over the years, the essence of IMC has expanded depending on what needs to be integrated and who integrates (Kitchen, P., Kim, I., Schultz, D., 2008). The traditional school of communication has long been criticised for the passive vision of customer (Buttle, F., 1995). While researchers pay more attention to the integration of customers, the body to be integrated is still largely company-oriented and based on traditional communication tools (Pelsmacker, P., Geuens, M., Van den Berg, J., 2013). Businesses now need to listen to their customers, find real points of interface with customers, and understand them, thus recognising and creating messages corresponding to the importance and value of customers. A customer can passively watch a televised advertisement whilst searching on Google or Wikipedia and sending messages on Facebook and chat rooms. Meaning-based communication models (McCracken, G., 1986) are one way how to place an active customer in the centre of the process. However, a key role in the development of IMC is played by digital promotion which gives vast options to businesses and consumers alike.

The authors find that a variety of IMC digital promotion tools may be used for a company's development and implemented through its website. For instance, in the context of sustainability, the company could adjust the structure of the information available on its website, with ecological products or Latvian-made products singled out, or offer a mobile application with information on the availability of such products to promote them. It would not cost much for them, as posting information on the Internet merely takes some time from the staff.

Information contained by the product barcode on the disposal and reuse of product packaging and the health impact of product composition and quality, as well as pictures on general use, in the author's view, would be a useful tool to be implemented by product manufacturers if they were required to do so by the Latvian legislation.

The formation of online social groups of consumers who regularly buy ecological products and their involvement in the popularisation, evaluation and promotion of the company's website, social media profiles and products, with the consumer activities rewarded based on a game system, would be effective as well. Social media and the latest technologies enable businesses to communicate with masses – a large number of people, and people are inherently interested in games and other exciting activities, so this would promote loyalty and raise the company's popularity. A game element system, linked to the brand loyalty programme to promote the sales of ecological products, could be implemented using points, discounts or gifts, and draw consumers long term.

¹Corresponding author. Mob. phone: +371 26582423; E-mail address: santa.bormane@gmail.com
²Corresponding author. Mob. phone: +371 29224223; E-mail address: anda.batruga@lu.lv;

The authors would also like to mention IMC tools for sustainability pertaining to loyalty cards and their linkage to payment, account replenishment and budget planning options. While these days there are plenty of loyalty cards and it may be inconvenient for consumers to carry multiple cards, businesses could use technologies to enhance their functionality and implement their marketing activities through these tools using direct marketing, offering products suited to each individual's habits and drawing buyers long term. If the company finds out the consumers' habits, offers him a budget planner and food basket based on his previous purchases and sets up a system that enables payment via loyalty card, the consumer will be less sensitive to price fluctuations generated by competitors and sales promotion activities involving price changes or gifts for purchase, just because he will have funds on the loyalty card – a certain amount that can only be spent at a certain shop – and will be able to replenish the card as well.

Practical study on digital promotion in integrated marketing communication

Concurring in essence with the development of integrated marketing communications in the context of digital promotion, the authors put forward a hypothesis that the use of integrated communications in digital promotion raises the level of consumer involvement and facilitates the exchange of information. In order to confirm or reject the hypothesis, the authors conducted research to assess the use of IMC at Latvian food retail chains. In order to study the influence of IMC digital promotion upon demand, an expert questionnaire was drawn up. The expert poll was held in 2017, and the MS Excel software was used for data aggregation and analysis. The goal of the poll was to find out the influence of IMC upon demand, with merchandising singled out.

According to the results of the expert poll (Figure 1), demand is increased by the following IMC digital promotion-related tools: company website design, ease of use, structure; company website providing information about shop and its products, and option for consumers to receive information and follow company on social media. Meanwhile such IMC tools as mobile application for convenient online shopping or providing information about shop and its products are absent from the companies' marketing communication. The authors find the trends of development in digital promotion to be positive – the expert ratings show that businesses do use digital promotion in their marketing communication and the authors agree that the website and its information is the company's business card that builds the first impressions on the company and its products. More extensive and structured information on the website is a relatively cheap way of communication yet yields many benefits – the availability of information to a vast range of consumers, the options of sharing information on social media facilitate communication among consumers, as well as information movement towards masses, hence the company can raise the level of consumer loyalty based on the information provided on the website.

¹Corresponding author. Mob. phone: +371 26582423; E-mail address: santa.bormane@gmail.com
²Corresponding author. Mob. phone: +371 29224223; E-mail address: anda.batruga@lu.lv;



Source: figure made by the authors upon aggregation of poll data in MS Excel

Fig. 1. Impact of IMC digital promotion-related tools upon demand, average expert ratings

Meanwhile the creation of online social groups enables the company to communicate with masses.

The authors mark out that businesses currently do not apply such IMC tools as mobile application for convenient online shopping or providing information about shop and its products, so there is room for growth. The authors find that not all Latvian food retail chains have online shops and for some such marketing activities are therefore not applicable.

Still, the authors recommend for those retail chains that have online shops to develop mobile applications as a competitive advantage, given the success examples of the availability of main banking services through a mobile application, an application of the Latvian State Revenue Service for declaring the eligible expenditure for tax purposes, an application for paying for a parking lot, an application for travellers, navigation and traffic information, applications that help people live a healthy and active life etc. Mobile applications help maintain a high level of loyalty of the consumers involved, as the convenience and privacy in an individual's phone may contribute to a decision in favour of a given shop. Furthermore, applications enable creating consumer databases, making customised loyalty programmes and offers for specific social groups to implement a customer-oriented approach.

As concerns IMC digital promotion-related tools in the context of sustainability, the expert poll reveals (see Figure 2) a partial presence of such marketing communications as formation of social groups on social media for consumers who buy ecological products, involvement of consumers in popularisation, evaluation, promotion of company's products on website, social media etc. (reward for consumer activities – game system), mobile application with information on Latvian-made products available in store, mobile application with information on ecological products available in store, linkage of loyalty card to payment options, account replenishment options, and other IMC digital promotion tools.

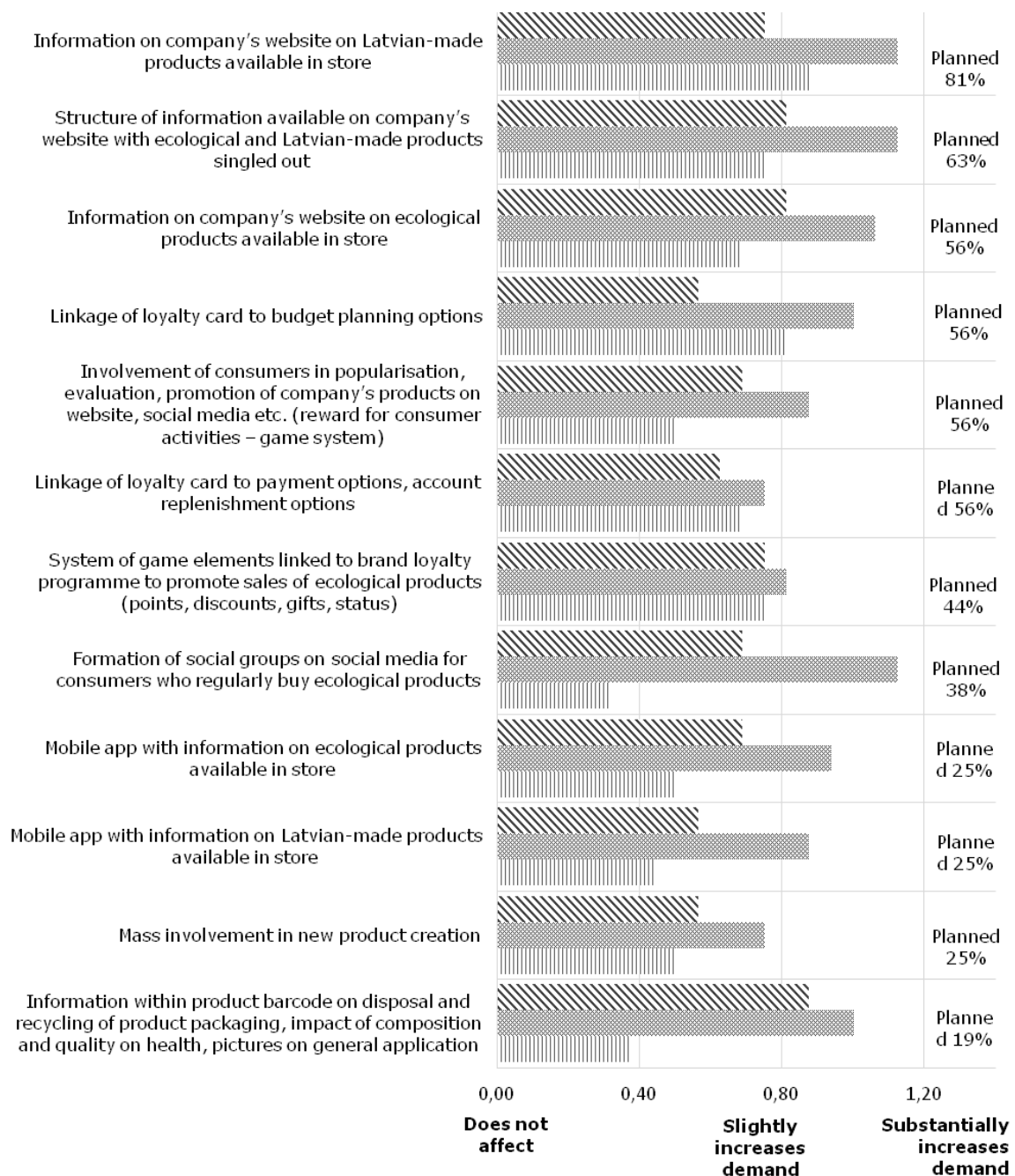
The authors concede that IMC digital promotion-related tools for sustainability are new and do not exist in the marketing communication of retail chains by now. As stated before, the development of technologies, including the use of smartphones, may serve as basis for businesses

¹Corresponding author. Mob. phone: +371 26582423; E-mail address: santa.bormane@gmail.com
²Corresponding author. Mob. phone: +371 29224223; E-mail address: anda.batruga@lu.lv;

to involve consumers in the promotion of their website and the popularisation of their products through social media, thus stimulating the exchange of information among masses. In order for this IMC activity to yield benefits, the authors recommend linking it with a system of consumer activity reward or games and points. Consumers like engaging in various games that motivate, incite action, and the reward system helps maintain the involvement and attention of consumers for a longer period.

Such IMC tools as mobile application with information on Latvian-made products available in store and mobile application with information on ecological products available in store, as stated before, may also be used for the implementation of a sustainable marketing strategy. The use of digital marketing to bring information to consumers and emphasising the availability of Latvian-made products and ecological products enable food retail chains not only to popularise their assortment, but also to promote the consumption of domestic and ecological products.

Linkage of loyalty card to payment options and account replenishment options, in turn, would help increase the number of loyal customers. The authors believe that, with consumers having loyalty cards, the linkage of such cards to payment options could sway them towards visiting the particular food retail store, and the option of replenishing the loyalty card account with own funds would directly attract consumers to that retail chain. Hence, there is a likelihood of holders of such cards being less sensitive to competitors' marketing activities, especially those with an immediate effect, sales promotion measures primarily pertaining to price or some further benefits – gifts, souvenirs etc.



▨ Environment preservation ▩ Social responsibility ▮ Economic development

Source: Figure made by the authors upon aggregation of poll data in MS Excel

Fig. 2. Impact of IMC digital promotion-related tools for sustainable upon Latvia's sustainable development

According to the results of the expert poll (Figure 2), within the next 3 years the food retail chains intend to use IMC digital promotion-related tools in their marketing strategy in the context of sustainability, despite many of those tools being new and not applied in practice so far. The authors welcome the expert replies as to which IMC digital promotion-related tools businesses intend to use in their marketing strategy. Company website and its information is, in essence, a relatively cheap communication channel. The availability of information on the website not only provides consumers with information but also builds the company's identity. It is the website

information on ecological or Latvian-made products that constitutes grounds for the integration and promotional use of such IMC digital promotion tool as involvement of consumers in popularisation, evaluation, promotion of company's products on website, social media etc. (reward for consumer activities – game system). As noted before, the involvement of consumers in popularisation activities through a motivational game programme enables businesses to expand the range of their loyal customers, with an impact upon regular revenues. A loyal customer is each company's regular source of revenue and basis of business. It is only the number of loyal customers that a company can base its future sales plans and resource requirements upon.

However, while part of the companies intends to use the specified IMC digital promotion-related tools for sustainability in their marketing strategy within the next 3 years, the experts have rated these IMC digital promotion-related tools as conducive to economy, social responsibility and environment (see Figure 2), with a positive impact upon the sustainable development of Latvia. This notably applies to information for consumers on company websites and makes the tools more influential not only towards increasing demand, but also towards overall developments where consumers, businesses and the state would benefit alike.

The authors explain that the expert replies whereby part of the companies intend to introduce mobile applications in their marketing strategy within the next 3 years stem from the fact that not all retail chains have online shops, so a mobile application would not justify the investment. Yet the authors encourage the chains that have an online shop to not just supplement their website and online shop with a mobile application, but make shopping more convenient. An application might not result in a great number of customers buying products via smartphone, but it allows to notify consumers of product availability as well as to structure products for marketing purposes (e.g., ecological, Latvian-made etc.). Mobile applications also get consumers involved in promotion and cover other functions, with the retail chains thus obtaining consumer data for direct marketing. Consumer data is a valuable resource for the purposes of personalised IMC.

Conclusions

- 1) IMC is developing, and digital promotion plays a key role in communication with consumers. Online activities in the media make a good communication platform, as customers can be reached at any time and place and the interactive way of presentation draws attention, encourages involvement, and promotes communication among consumers.
- 2) The use of digital promotion tools of integrated marketing communication has a positive impact upon demand at Latvian food retail chains.
- 3) Digital promotion as a set of integrated marketing communication measures in the context of sustainability and its use in the marketing strategy fosters economic development, social responsibility, and environment preservation.
- 4) The objectives set out for the study have been fulfilled and the goal has been achieved. The theoretical and practical research confirms the initial hypothesis that the use of integrated marketing communications in digital promotion raises the level of consumer involvement and facilitates the exchange of information.
- 5) Mobile applications get consumers involved the promotion of businesses and their products and enable retail chains to obtain consumer data for a personalised direct marketing. A high level of consumer loyalty, convenience and privacy may be the basis not only for a decision to visit the

shop, but also for databases, individual loyalty programmes, offers to specific social groups, ensuring a customer-oriented approach.

- 6) The use of IMC digital promotion with the involvement of consumers in popularisation activities based on a motivational game programme enables businesses to expand the range of their loyal customers, with an impact upon their regular revenues. Based on the number of loyal customers, businesses may plan their future sales volumes, product assortment, resource requirements.

Bibliography

1. Bakanauskas A., 2004, *Marketingo komunikacija*. Kaunas: VDU leidykla, p. 78-79
2. Bruhn, M. (2014). *Integrierte Unternehmens- und Markenkommunikation: Strategische Planung und operative Umsetzung*, Edition 6th, Schäffer-Poeschel Verlag, Stuttgart, p. 87
3. Bruhn, M.(2008). *Planning Integrated Marketing Communications*, in Sievert, H. and Bell, D. (Eds), *Communication and Leadership in the 21st Century: The Difficult Path from Classical Public Relations to Genuine Modern Communication Management*, Bertelsmann Stiftung, Gütersloh, p 13-34
4. Bruhn, M., Schenebelen, S.(2017). *Integrated Marketing Communication – From an Instrumental to a Customer-Centric Perspective*, European Journal of Marketing, Volume 51, Issue 3, p. 464-489
5. Buttle, F., 1995, "Marketing Communication Theory: What do the Texts Teach Our Students", International Journal of Advertising, Vol. 14 No. 4, pp. 297-313.
6. Caywood, C.L., Schultz, D.E. and Wang, P. (1991). *Integrated Marketing Communications: a Survey of National Consumer Goods Advertisers*, Unpublished Research Report
7. Ciemleja, G. (2010). *The Sustainable Performance of Small and Medium-Sized Enterprises. Problems and Solutions.*, Summary of Doctoral Dissertation of Economics and Management, Riga Technical University, pp. 28
8. Clow, K. E., Baack, D. (2002). *Integrated Advertising, Promotion and Marketing Communications*. Cranbury, NJ: Pearson Education, Inc.
9. Finne, A., Gronroos, C., 2017, *Communication-in-Use: Customer-/Integrated Marketing Communication*, European Journal of Marketing, Vol. 51 Issue: 3, p 445-463, pieejams: <https://doi.org/10.1108/EJM-08-2015-0553> [skatīts 10.03.2017.]
10. Gronstedt, A. (1997). *Internet: IMC on Steroids*, Marketing News, Volume 31, p 16
11. Kanso, A., Nelson, R. (2002). *Advertising Localisation Overshadows Standardisation*, Journal of Advertising Research, Volume 42, p 79-89
12. Kitchen, P. and Schultz, D., 2009, "IMC: New Horizon/False Dawn for a Marketplace in Turmoil", Journal of Marketing Communications, Vol. 15 Nos 2/3, pp. 197-204.
13. Kitchen, P. , Kim, I. and Schultz, D., 2008, "Integrated Marketing Communications: Practice Leads Theory", Journal of Advertising Research, Vol. 48 No. 4, pp. 531-546.
14. Kitchen, P. J., Schultz, D.E. (1999). *A Multi-Country Comparison of the Drive for IMC*, Journal of Advertising Research, Volume 39,p 21-38
15. Mc Cracken, G., 1986, "Culture and Consumption: a Theoretical Account of the Structure and Movement of the Cultural Meaning of Consumer Goods", Journal of Consumer Research, Vol. 13 No. 1, pp. 71;
16. Mick, D. and Buhl, C., 1992, "A Meaning-Based Model of Advertising Experiences", Journal of Consumer Research, Volume 19, Issue 3, p 317-338.
17. Morioka, S. N., Evans, S., Carvalho, M. M. (2016). *Sustainable Business Model Innovation: Exploring Evidences in Sustainability Reporting*, Procedia CIRP, Volume 40, p. 659-667
18. Pelsmacker, P. , Geuens, M. and Van den Berg, J., 2013, *Marketing Communications: A European Perspective*, 5th ed., Pearson, Harlow p73-75
19. Schultz D.E., Kitchen P. J. (2000). *Communicating Globally: an Integrated Marketing Approach*. London: Palgrave-Macmillan, p 16
20. Salkovska, J. (2016). *Integrētā mārketinga komunikācija*, Promocijas darba (monogrāfijas) kopsavilkums Doktorā grāda iegūšanai ekonomikas nozarē, p 77
21. Seric, M., Gil Saura, I. and Ozretic Dosen, D.(2015). *Insights on Integrated Marketing Communications: Implementation and Impact in Hotel Companies*, International Journal of Contemporary Hospitality Management, Volume 27, p 958-979

MEDICAL TOURISM SERVICES IN THE BALTIC STATES: DENTISTRY

Tamara Grizane¹, Dr.oec.; **Līga Jankova**², Dr.oec.; **Aija Sannikova**³, Dr.oec.;
Inguna Jurgelane⁴, Dr. oec.

¹ Turība University; ² Latvia University of Life Sciences and Technologies;

³ University of Economics and Culture; ⁴ Rīga Technical University

Abstract. In Latvia, the ever increasing trend of competition between the medical tourism as well as its branch dental tourism is evident. The aim of the research – to investigate the comparative advantages of the medical tourism and its services in the Baltic States. The medical tourism of the Baltic States was evaluated based on physical, economical and specialist availability and its quality. The research methodology used in the research: scientific induction and deduction, comparison, graphic, synthesis and analysis. As a result, the advantages of medical and the dental tourism of Latvia over its competitors in other Baltic states was evaluated: the comparative advantages of medical tourism in Latvia are related to the transport infrastructure advantages, the prices of dental services are similar, while a strategy is needed for a regulated influx of specialists to the specific branch.

Key words: medical tourism, dentistry, Baltic States.

JEL code: I15, R11

Introduction

Medical tourism (further MT) is one of forms of medical tourism. The term Medical tourism is attributed to the willingness of people to travel great distances in order to receive physical or mental medical treatment (OECD, 2010) and can include also dental services. It is believed that MT includes health improving procedures (Carrera, Lunt, 2010) or that it is traveling with the goal of aim of improving health (Bookman & Bookman, 2007). Nonetheless, from an economical perspective according to the price level MT can be viewed as a more accessible service (Edelheit, 2008). Some scientists believe that medical tourism should be distanced from the health tourism (Jonson, 2010).

The overall influence of MT tourism in the economics in 2016 is evaluated at 61.12 million US dollars and is forecasted to increase by 20 % until 2023 (Mordor Intelligence, 2016; Allied Market Research, 2017).

The development of MT in Latvia can facilitate the increase of tourism product export (Cabinet of Ministers of the Republic of Latvia, 2014). In addition, the development of MT in the Baltic States is a goal, which corresponds to the policy of EC in the field of tourism (European Union publications, 2011). The ability of countries to sell their products in the international markets and their ability to compete with analogue products is a market with the traditional elements of competition – price, quality etc. (Hirschey, 2008). The availability of services is influenced by the localisation of services and the purchasing power of patients, which correlates with the macro-economic processes in the country (Elfderfield, 2017; Pollard, 2017a; 2017b).

The international competition and the change of the macro-economic environment promotes creation of medical tourism clusters – the common innovation potential inclusive networks (EK, 2002, 14). The authors agree with the opinion that the increase of competition in the local market can further the export capability in the context of global competition (Capone, 2006; Michael, 2007). The Baltic health tourism cluster was created in 2013 (MedLT, 2013; The Baltic Assembly, 2017). Its main goal – to improve the cooperation between the tourism destination objects by sharing the suitable methods for sharing of good praxis, improving of quality and branding, by developing of the health tourism policy documents, thus concentrating the impact on the competition in the medical tourism, incl., the dentistry (Smith, 2015).

Although in the political documents the MT in the overall tourism framework is positioned as an economically important sphere, nonetheless until now the analysis of services and support services of MT in the Baltic States, incl. the dentistry, have been insufficient. The identification of the advantages of Latvia in the specific fields have been insufficient as well.

Research question: does the medical tourism branch *dentistry* in Latvia has advantages in comparison with other Baltic states? **The research object:** medical tourism and its branch *dentistry* in the Baltic States. **Aim of the research:** to assess the advantages of Latvia's medical tourism branch *dentistry* industry in comparison with other Baltic States.

Tasks:

- 1) to study theoretical aspects of medical tourism, dentistry services and Baltic States;
- 2) to carry out comparative analysis of the medical tourism industry and its branch *dentistry* services in the Baltic States;
- 3) evaluate the comparative advantages of the medical tourism industry and its branch – *dentistry* in Latvia compared with other Baltic States.

The methods applied: the research is based on literature studies, the method of analysis as well as synthesis were used in the current study. The research methods are: monographic, comparison, abstract-logical method, synthesis and analysis, induction and deduction, statistic data analysis.

Novelty of the study: the comparative analysis of medical tourism and dentistry services in the Baltic States has been carried out.

Research sources and materials: the research includes analysis of the documents from the Baltic States, international organizations, statistical materials. The research is based on previously published reports and analysis of the official statistics, as well as authors' research on prices of services.

Research limitations: in medical tourism (MT) and its branch *dentistry* (further Den), there is a limited amount of available information due to the commerce secret limitations as well as due to lack of statistical data, especially in 2017. The advantages of medical tourism were analysed according to accessibility aspects – transport, prices and specialists.

Research materials and methods

MT is believed to be a constantly growing multibillion, "which makes the world compete in the aspects of the quality of medical standards, while keeping the lowest possible price for the offered medical services" (Lunt et al., 2016: 40; Sandberg, 2017). This tourism branch is most popular in high income countries (the US, Canada and Western-Europe countries), especially in cases, when the inland health insurance doesn't cover whole health treatment needs. In these cases, the citizens often choose to buy high quality low-cost medical services abroad.

Different sources can be used in the comparison of MT services and evaluation, for instance, the ranking of the medical industry *dentistry* – Global Clinic Rating (GCR) (MTQUA, 2014). It can be concluded that the number of the best dental clinics is uneven (in Europe – 14, North-America – 2, Vietnam, India and Philippines – 3, while the dominating country in the dental industry is Hungary with 450 clinics (Global Clinic Ranking survey, 2016). Meanwhile dental tourism *dental implant* services are provided in Croatia, Poland, Egypt, Thailand, Turkey, Labanon, Mexico, the United Arab Emirates and India. In the hospital rankings (Global Clinic Ranking survey, 2016). The service quality is also affected by the trends in the provision of specialist training, which is led by

such universities as the University of Hong Kong, The University of Michigan, Karolinska Institutet of Sweden (QS World University Rankings..., 2016).

In order to evaluate the MT in the Baltic States, the country specific medical tourism and its services' criteria was defined, thus allowing to determine the competitiveness of the specific country. These include: the number of inhabitants per one dentist, age structure of dentists, organisation of dental education, price of services, availability, compliance of the treatment standard etc. (Kotulic, Lencova, 2010; Cernikovaite, Mameniskis, 2015; Smith, 2015). There are 46 medical treatment institutions in Latvia which have registered for MT service provision; however, none of these or any other of the institutions in the Baltic States are ranked among the world's best service providers.

Although medicine clusters in the Baltic States identify the specific MT resources in the common regional health tourism brand creation in the Baltics (Smith, 2014; 2015), yet in this research there is not enough attention paid to the MT branch – *dentistry*. It is acknowledged that the MT is a specific form of patient mobility, which is determined by multiple factors: cost of services; travel costs; quality anticipation; language of communication; previous experience of the individual. This indicates the importance to evaluate the MT impacting factors. Based on the acquired information, authors analysed the MT in three separate blocks: (1) according to physical availability; (2) economical accessibility; (3) availability and quality of the specialists.

Research results and discussion

Physical accessibility (transport). The Baltic countries are located in the geographical centre of Europe, thus it is easy to reach them by plane from any European country. Main airports are located in the capitals: Riga, Vilnius and Tallinn. However, there are also smaller regional airports where international airlines operate - Kaunas and Palanga in Lithuania and Tartu in Estonia. However, when comparing it with other Baltic countries, the Riga airport is far superior, because according to the information collected by the Airport Council International (ACI), it is included in the airport group with the overall serviced client capacity of 5-10 million per year with a growth index of 9.6, which significantly exceeds even the average results of airports in Europe (BNN, 2017). Authors underline that it can be clearly observed in the World Economic Forum Report: according to the quality of air transport infrastructure, Latvia is ranked 51st, Lithuania 78th, while Lithuania 53rd (World Economic Forum Report, 2017).

International train routes from Riga are to St.Petersburg, Moscow, Pskov in Russia and border town Valga in Estonia. Trains go from Vilnius to St.Petersburg, Moscow, Kaliningrad in Russia and Warsaw in Poland. From Tallinn, trains depart to Moscow. One has to mention that there are good bus services between the largest cities of the three Baltic States and the neighbouring countries. Land and port infrastructure ranks Latvia 41st, Lithuania 32nd, while Estonia 36th (World Economic Forum Report, 2017).

The MT arrivals of Estonia, in comparison to that of Latvia (Table 1) is significantly larger, namely by 1.65 million arrivals and 669US\$ millions in tourism receipts and in comparison to Lithuania by 847 million arrivals and 351 US\$ millions in tourism receipts. One of the reasons why the Medical tourists commonly choose Estonia is related to the tourism infrastructure, according to which Estonia is ranked 22nd, Latvia 48th, while Lithuania 58th (World Economic Forum Report, 2017).

Dental care target markets for Latvia are the United Kingdom, Norway, Finland, Ireland, Sweden, for Estonia – Scandinavia (esp. Finland) and Russia, while for Lithuania – Germany, Poland, the UK, Scandinavia, and Ukraine. When comparing the time spent on travelling with airplane to Latvia and while taking into account the transport waiting time, according to the authors' calculations time spent by the MTs from the Scandinavian countries reaches 3h30min to 5 h30 min by air, by train/ferry - 17 h - 24 h40 min, ferry/car – 6 h17 min-20 h29 min. When travelling by air from the UK, the travel time reaches 2h45min, while train/bus – 32 h38 min. Time spent travelling from Estonia to Lithuania from Scandinavian countries, in comparison to Latvia, is close with an average interval of 1 h-2 h.

Table 1

Comparison of descriptive economic activity data in the Baltics States

Metric	Baltic States		
	Latvia	Lithuania	Estonia
Population (01.01.2017)	1 937 444	2 854 649	1 315 944
GDP per capita, 2016 (EUR)	15 231	12 329	17 853
International Tourist Arrivals (million)	1 793	2 296	3 143
Tourism Receipts (US\$ million)	867	1,185	1,536
Indicator of competitiveness (2010=100 %), 2017	103.1	101.4	104.8
Global Competitiveness Index (GCI), 2016-2017*	49	35	30
Travel & Tourism Competitiveness Index (T&T)**	54	56	37
Health expenditure per capita, 2016 USD, PPP Total	1466	1970	1989
• Government/Compulsory	828	1319	1513
• Voluntary/Out –of-pocket	639	652	476
Standard Vat rates (%)	21	21	20
• Medicines, Medical Equipment for Personal use of the Disabled (%)	12	5	9
• Transport (%)	12	9	20
• Hotel accommodation (%)	12	9	9
• Restaurant and catering services (%)	21	21	20
Dentist per 100 000 inhabitants, 2015	72	91	94
Gross monthly wage of dentists, 2017	981	1 151	1 473

* Rank out of 136 (2017); ** Rank out of 141 (2015)

Source: designed by the author according *Global Competitiveness Report, 2016; OECD Economic Outlook, 2016; World Bank, 2016; EUROSTAT, 2017; Health at a Glance 2017..., 2017; Health Statistics and a Health..., 2017a; Privaciū odontologijos kliniku, 2017; UNWTO, 2017*

One exception is the travel from Finland to Estonia, which is only 35min by air or 2-3h30min by a ferry. However, the distance to Estonia is longer and more time consuming than a travel from other EU countries. Travels between the Baltic States by car take 2h30-3h, while by air 50-56min. Authors conclude that although the time consumption varies, nonetheless Latvia owing to its geographic location is in a more favourable position.

Economical accessibility. Many researchers, whom authors agree with, believe that the MT (dental treatments) are chosen by clients in the bordering region countries because of economic accessibility (Osterle et al., 2009; Onesimo Cuamea, et al., 2017). One of the reasons is GDP per capita (Table 1), which drives the flow of MT to countries with economically balanced expenses, the second one – health expenditure per capita (Uçak, 2016). Costs of medical care in the target country in most cases is related to the GDP of the given country, and the low administrative and medical costs increase the accessibility of both the MT and the medical services.

Among the Baltic States, Lithuania, although characterized by lower GDP per capita, is investing in MT almost as much as Estonia and by 504€ more than Latvia. Although the GDP per capita of Estonia is 17 853€ (2016), the overall investment of the state is the largest among the Baltic States. An important part of the MT services' prices are the VAT rates, which in Latvia are the highest (Table 1). This also applies to the services affecting tourism - transport, accommodation, restaurant and catering services. This also affects the medical tourism, which in Latvia by 3 and 7 % higher than in Estonia and Lithuania.

Authors believe that the price is one of the most important factors in the entrepreneurship environment. In the dental branch, authors analysed prices of six services – visitation, tooth filling, placement of tooth crown, insertion of implant, extraction of impacted tooth, as well as dental hygiene. The comparison of dental service prices in the Baltic States (Table 2) show that the prices in Baltic States do not differ significantly; however, the tooth extraction and tooth implantation services are cheaper in Latvia, while the tooth hygiene – in Lithuania.

Table 2

Average prices of dentistry services in the Baltic States

Services (€)	Baltic Countries		
	Latvia	Lithuania	Estonia
Visitation	20 -25	Free -15	Free -35-40
Tooth filling	55-65	50-70	23-55
Placement of crown	320 -335	220-400	325-500
Insertion of implant	665-700	550-1400	1300-1500
Extraction of impacted tooth	55-60	70-150	60-150
Dental hygiene	45-70	30-60	65-80

Source: designed by the author according Baltic States company websites. The average salary of dentists in the Baltic States based on price surveys and official website of dental service providers

The MT prices are attributed to a wider range, for instance, in Finland tooth implants (price 1.900-2.400€) are not covered by state insurance, therefore the service is more favourable in Estonia. However, as it is pointed out by the head of Lithuania medical tourism cluster Mr Grazvidas Morkuss (*Grazvydas Morkus*), dental treatment services in Lithuania are up to 12 times more affordable than those in Norway, which, as a result, drives the increase of Scandinavian medical tourists.

In Latvia, reliable statistics on MT is not available. Conclusions can be drawn that 11 % of the allocated resources by the National Health Service in Latvia are used for dental treatment (Republic of Latvia. Regulations No.1036, 2004).

Availability of specialists and quality. The number of inhabitants of Estonia, in comparison to those of Latvia and Lithuania is smaller (Table 1), the number of available dentists per 100 000 citizens than elsewhere in the Baltic States, accordingly – par 22 und 3. It is more common for women to be employed as dentists – Estonia and Latvia – 87 %, Lithuania – 83 % (2013); meanwhile, for instance, in Switzerland and Italy, the female specialists amount to only 28 % und 34 % correspondingly (Kravitzobe, Bullock, Cowpe, et al., 2015). More than half of those working in the dentistry in Latvia (as well as in other Baltic States) are older than 50 years: in Latvia 40.4 % are in the age group 50-64 years, 11 % - older than 64 years (Latvia. Statistics in Brief 2017, 2017). The gross monthly wage of dentists (2017) in Latvia (Table 1) that is 170€ less than in Lithuania and 492€ less than in Estonia. The resulting outcomes of such conditions are the work-emigration (Balazs, 2012), which is backed by a survey indicating that in Lithuania during the

economic crisis (2010) 26.9 % of the dentistry students planned to work abroad (Janulyte, Puriene, Petrauskiene, et al., 2011) with similar situation in Latvia.

In Lithuania, dental education is offered by two universities – Vilnius University and Lithuanian University of Health Sciences in Kaunas, Centre of Dentistry and WHO Collaborating Centre in Continuing Dental Education; in the Riga Stradins University Institute of Stomatology in Latvia; in Estonia – University of Tartu, in which the studies are fully funded by the state. Nonetheless, the overall number of prepared qualified dentists is not sufficient for the growing demand. Authors conclude that dentist qualifies under the ISCO 08 with the code 226:2261. The Euro Health Consumer Index (EHCI) 2016 is made up of six sub-disciplines. As no country excels across all aspects of measuring a healthcare system, it is of interest to study between the six-subdisciplines out of which accessibility (waiting times for treatment) when summing together give the following ranks to the Baltic States (n=35), where Latvia is ranked 29, Lithuania 27 and Estonia 17 (Bjornberg, 2017).

Conclusions, proposals, recommendations

- 1) Medical tourism is one of the forms of health tourism and a growing industry worldwide. MT is developing also in the Baltic States, while the target markets of the Baltic States tend to overlap.
- 2) According to the physical accessibility of MT, Latvia has the comparative advantages among the Baltic States, which increases the overall accessibility of medical services according to the time factor. Nonetheless, the country is lagging behind other Baltic States according to the ground and port infrastructure rankings (41st place), which should be further developed.
- 3) Overall, the tourism infrastructure ranks highest among the Baltic States; however, Estonia manages to gain the largest amount of income. One of reasons behind such situation is that Estonia (same as Lithuania) have advantages in terms of lower VAT rates on transport, accommodation, restaurant and catering services costs as well as lower medical tourism services and dental services costs. Medical tourism in Estonia is influenced by a more arranged environment of employment and a larger state funding for education in the field of dentistry, while in Lithuania – by more financing for health-care system.
- 4) The average costs of dental services in the Baltic States are prone to large differences; therefore, MT advantages for Latvia are related to the transport infrastructure advantages, which make the services more accessible (time and travel costs).
- 5) By developing the Baltic tourism MT cluster, Latvia and other Baltic States can promote influx of new specialists in the specific field and has the potential to increase the competition, thus increasing the overall quality of services and innovative services.

Bibliography

1. Balazs, P. (2012). Dentists' Workforce in Hungary and International Migration. *Fogorv Sz.* Vol.105(2), pp. 77–85.
2. Bjornberg, A. (2017). Euro Health Consumer Index 2016. Report. Health Consumer Powerhouse, p. 100.
3. BNN (Baltic News Network) Riga Airport becomes part of TOP 5 of Europe's rapidly growing airports. September 20, 2017. Retrieved: <http://bnn-news.com/riga-airport-becomes-part-of-top-5-of-europe-s-rapidly-growing-airports-171922>. Access: 10.02.2018.
4. Bookman, M., Bookman, K. (2007). *Medical Tourism in Developing Countries*. Basingstoke: Palgrave Macmillan, pp. 12.
5. Cabinet of Ministers of the Republic of Latvia (2014). *Cabinet Regulation No.326 'Latvia tourism development guidelines for 2014.–2020.'* Retrieved: <https://likumi.lv/doc.php?id=267332>. Access: 13.01.2018.

6. Capone, F. (2006). Systemic Approaches for the Analysis of Tourism Destination: Towards the Tourist Local Systems. In L. Lazzeretti & C. S. Petrillo (Eds.), *Tourism Local Systems and Networking*, pp. 7-23. Oxford, Amsterdam: Elsevier.
7. Carrera P., Lunt (2010). A European Perspective on Medical Tourism: The need for a knowledge base. *International Journal of Health and Services*, Vol. 40(3), pp. 469-84.
8. Cernikovaite M. E., Mantas Jonas Mameniskis, M.J. (2015). Medical Tourist' Expectations when Choosing Lithuania for Health care Services. *Social Transformations in Contemporary Society*, Vol.3, p39.
9. CSB (Central Statistics Bureau of Latvia) (2015). Baltijas valstis. Retrieved: http://www.csb.gov.lv/sites/default/files/skoleniem/LV_ES/baltijas_valstis.pdf. Access: 15.01.2018.
10. Edelheit, J. (2008). Defining Medical Tourism or not? *Medical Tourism Magazine*, Vol.5, pp. 9-10.
11. EK (European Commission) (2002). *Regionale Cluster in Europe*. Beobachtungsnetz der europäischen kmU,3. Luxemburg: Amt für amtliche Veröffentlichungen der Europäischen Gemeinschaft.
12. Elfelderfield, G. (2017). For Healthcare Leader (HSJ) Retrieved: <https://www.hsj.co.uk/graham-elderfield/1546716.publicprofile>. Access: 30.01.2018.
13. European Union publications (2011). 'Directive 2011/24 of 9 March 2011 of the European Parliament and the Council on the application of patients' rights in cross-border healthcare'. *Official Journal of the European Union*, L 88, p. 45.
14. Eurostat: website. (2017). Health personnel (excluding nursing and caring professionals). Retrieved: <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>. Access: 02.02.2018.
15. Global Clinic Ranking survey (2016). TOP Dental Clinic Rankings for 2016. Retrieved: <https://gcr.org/top/dental>. Access: 15.01.2018.
16. Health at a Glance 2017: OECD Indicators (2017). Health expenditure per capita, 2016. OECD publishing, p. 4.
17. Health Statistics and a Health Research Database (2017a). Gross monthly wage of dentists. Retrieved:
18. http://pxweb.tai.ee/PXWeb2015/pxweb/en/04THressursid/04THressursid__06THtootajatePalk/TT06.px/table/tableViewLayout2/?rxid=8ddacc78-b02a-4765-9501-4cc63c152d4e. Access: 10.02.2018.
19. Hirschey M. (2008). *Managerial Economics*. - Mason, Ohio: Thomson/South-Western, 791 p.
20. Janulyte, V., Puriene, A., Petrauskiene, J., Peciuliene, V., Benzian, H.(2011). International migration of Lithuanian oral health professionals: a survey of graduates. *Int Dent J*. Vol.61(4), pp. 224-230. doi: 10.1111/j.1875-595X.2011.00062.x.
21. Kravitzobe, A.S., Bullock, A., Jon Cowpe, J., Barne, E. (2015). EU Manual of Dental Practice 2015. Edition 5.1. The Council of European Dentists. UK: Cardiff University, Wales. P. 420.
22. Kotulic, C., Lencova, E. (2010). Konkurencni prostredi a konkurenceschopnost zubnich ordinaci v CR. Konkurence – Teoreticke a prakticke aspekty. *Sbornik prispevku z pracovni konference s mezinarodni uscasti*, pp. 166-169.
23. Latvia. Statistics in Brief 2017. Practising medical specialists by age and speciality http://www.csb.gov.lv/sites/default/files/nr_04_latvia_statistics_in_brief_2017_17_00_en.pdf
24. State Inspection of the Republic of Latvia. Official website (2017). Medical Institutions Registered for Medical Tourism Services. Retrieved: http://www.vi.gov.lv/uploads/files/medicinas_%20turisms_15122017.pdf. Access: 05.01.2018.
25. Lunt, N., Horsfall, D., Hanefeld, J. (2016). Medical tourism: A snapshot of evidence on treatment abroad. *Maturitas*, Vol. 88, pp. 37-44.
26. Medlt (2013). Cooperation Between Baltic States Medical Tourism Clusters and Associations Established. Retrieved: <http://www.medlt.com/EN/menu/news/cooperation-between-baltic-states-medical-tourism-clusters-and-associations-established>. Access: 02.02.2018.
27. Michael, E. J. (2007). *Micro-Clusters and Networks: The Growth of Tourism* (1st ed.). Oxford: Elsevier Science.
28. Mordor Intelligence (2016). *Global Medical Tourism Market – Growth, Trends & Forecast (2016-2021)*. Retrieved: https://www.mordorintelligence.com/industry-reports/medical-tourism-market?gclid=Cj0KEQjw3_HOBRDa7NbDqdudqMEBEiQAvLBbohYsuWMYaKpm7NWN0-o-FtmnLNTfbtIOBikgxYQLIqQaAsRv8P8HAQ. Access: 10.01.2018.
29. MTQUA (Medical Tourism Travel Quakity Alliance) (2014). *Medical Tourism Certification from MTQUA*. Retrieved: <https://www.mtqua.org/medical-tourism-certification/>. Access: 15.01.2017.
30. OECD (2010). Health Accounts Experts, Progress Report. Trade in Health Care Goods and Services Under the System of Health Accounts. Paris: OECD, p. 4.
31. OECD Economic Outlook (2016). OECD. Retrieved: <http://www.oecd-ilibrary.org/> Access: 5.01.2017
32. OECD Health Statistics 2017: website. (2018). OECD Health Statistics 2017 – requested Data (November 2017). Retrieved: <http://www.oecd.org/health/health-data.htm>. Access: 02.02.2018.
33. Onesimo Cuamea, V., Jorge, C., Morgan M., Ario, r., Estrada, G. (2017). Dental Tourism: Key factors that Influence the Selection of a Dental Clinic. *International Journal of Advanced Research* Vol.5 (2), pp. 2713-2721.
34. Osterle, A., Balazs, P., Delgado, J. (2009). Travelling for teeth: Characteristics and perspectives of dental care tourism in Hungary. *British dental journal official journal of the British Dental Association: BDJ online* Vol.206(8), pp. 425-428.

35. Pollard, K. (2017a). If you don't like change, get out of the private healthcare sector now. Retrieved: <https://www.privatehealth.co.uk/industry/blog/%E2%80%9Cif-you-don%E2%80%99t-change-get-out-private-healthcare-sector-now%E2%80%9D-1153809/>. Access: 30.01.2018.
36. Pollard, K. (2017b). How to Create a Unique Value Proposition in Medical Tourism. Presentation from Public Healthcare Summit 2017. *International Medical Travel Journal* (IMTJ). Retrieved: <https://www.imtj.com/>. Access: 30.01.2018.
37. Privacių odontologijos klinikų mokamas didžiausias vidutinis darbo užmokestis 2017 m., Eur/mėn. [average salary in private dental clinics in 2017 EUR/per month] Retrieved: <https://www.vz.lt/paslaugos/2017/06/03/didziausios-algos-privaciose-odontologijos-klinikose>. Access: 05.01.2018.
38. QS World University Rankings by Subject 2016 – Dentistry (2018). Retrieved: <https://www.topuniversities.com/university-rankings/university-subject-rankings/2016/dentistry>. Access: 15.01.2017.
39. Republic of Latvia. Regulations No.1036 of the Cabinet of Ministers of April 13, 2004 'Health Care Organization and Financing Procedures' issued by the Cabinet of Ministers on 18 January, 2005. (21.12.2004). Latvijas Vestnesis Nr.9, 2005. 18.janv.
40. Sandberg, D. (2017). Medical Tourism: An Emerging Global Healthcare Industry. *International Journal of Healthcare Management*, Vol. 10(4), pp. 281-288.

PERFORMANCE OF SOCIAL BENEFIT COMMITMENT IN MARKETING ORIENTATION

Silvije Jercinovic¹, MSc/ senior lecturer; **Matija Muzina**², student;
Kristina Svrznjak³, Phd/ professor and **Sandra Kantar**⁴, Phd/ senior lecturer
^{1,2,3,4} Krizevci College of Agriculture, Croatia

Abstract. Market orientation today does not only imply on consumers and competition, but also on the wider socio-economic context. The purpose of this paper is to recognize the form of application of specific elements of market orientation in the specific circumstances of the Croatian agri-food sector and its impact on achieving competitive efficiency of their enterprises. The study was conducted on a sample made up of 83 agricultural and food enterprises from seven counties of continental Croatia. The research was carried out using the adjusted model of market orientation measurement, which includes an additional dimension focused on creating social benefits. The survey examined the attitudes of respondents regarding issues of enterprise's competitive performance, socially responsible marketing planning, information dissemination on social benefits and market research. The research results have shown that market research and socially responsible marketing planning have a positive impact, while the information dissemination on social benefits don't have a significant impact on the competitive efficiency of investigated enterprises.

Key words: market orientation, social benefit, competitive efficiency of enterprises.

JEL code: M31 O31, Q01, Q13

Introduction

Market orientation is a business approach or philosophy that focuses on identifying and meeting explicit or hidden needs or consumer desires. It could be also defined as a form of organizational culture in which employees continuously create top-notch value for consumers or as a set of marketing activities that lead to better performance.

Early founders of market orientation Narver and Slater (1990) have developed MKTOR model, and after them Jaworski and Kohli (1993) have developed their own model MARKOR. They have different approaches to market orientation. Kohli and Jaworski (1993) defined market orientation in the terms of organizational behaviour, related by principle of marketing concept, while Narver and Slater (1990) considered it in terms of organizational culture.

Given to the new conditions and to distribution of the roles in the socio-economic system, the emphasis is on socially responsible or sustainable business with its aim of achieving a sustainable society. It represents challenges and could make difficulties for them. In the case of classical market orientation, its models do not include orientation towards the broader socio-economic platform, which becomes an increasingly important factor in defining the conditions for achieving the competitiveness of the enterprises these days. Issues that are equally important in shaping enterprise programmes and strategies include a wide array of issues such as social issues, human rights, health, environmental issues etc. The mindset of contemporary settings for creating and implementing business models is, of course, achieving optimum and constant results through business, but considerable attention is also given to the impact on the development and well-being of the community in which the enterprises permanently and durably operate. Therefore, in measuring the factors that are conducive to achieving optimal business performance, it is necessary to include elements of sustainability. The concept of relation between corporate sector and society has been developed over the last couple of decades and expanded from social commitment and management to social responsibility and social response (Mbare, 2004). Therefore, the relationship between marketing and social factors is also interesting. The strategic aspects that arise from such a combination are becoming extremely popular and desirable and

could be considered not only as a strategic positioning tool (Veludo-de-Oliveira, 2006), but also as an overall development tool of the company's competitiveness.

Social benefit as a new factor of market orientation can be defined as an increase in social welfare that is derived or resulted from a business activity. Social benefit is primarily tied to the delivery of values not only to the consumers, but also to the entire society. Social benefit is also a satisfaction with different aspects of life, so its concept can be linked even to the concept of quality of life (Christoph and Noll, 2003).

Social benefits in some way include those benefits that are delivered through production and delivery of products and services. It includes personal benefit to the individual and those benefits that are important for the society in general (Gunarathne, 2015).

Given the notion and importance of social benefit in the wider economic and social context, it is possible to make conclusions about its importance with regard to the potential that is attached to strategic marketing. This importance should be observed in the first place in the context of strategic planning, segmentation, product differentiation and of course, positioning.

The object of the paper is orientation towards social benefit within the model of market orientation.

The aim of the paper is to prove through the application of the social benefit into the market orientation that a such responsible business orientation has a favourable economic impact on the business outcomes, and therefore it is important to explore which of the emerging forms of implemented social benefit through market orientation are the best and to what extent affect the achievement of the enterprise's competitive efficiency.

The methods of research: analysis of scientific literature, the survey was conducted by employing the revised market orientation questionnaire NEWMKTOR (Gunarathne, 2015). SPSS was used for data analysis.

Theoretical background

From a marketing perspective, market orientation can be defined as one of the most important aspects of organizational culture. It is a system of common norms and beliefs, both of which can affect the organizational governance structure (Nuansate and Mohd Mokhtar, 2013). Organizational culture is created through organizational shared beliefs, values and guidelines by the enterprise's leadership and it is promoted among employees at all levels. So, it is very important moderator of the market orientation definition.

The philosophy of market orientation is based primarily on the principle of identifying needs and demands of consumers in order to achieve organizational goals and to achieve greater consumer satisfaction while simultaneously monitoring, recording and acknowledging competition activities. It is focused on the continuous adaptation of products and services according to the needs and expectations of consumers (Gronroos, 2006). The concept of market orientation focuses on coordinated business reporting and dissemination of data collected from the field (market), as well as responding to competition activities, all for the purpose of making effective business decisions. Conceptually, market oriented enterprises are well-informed about the market and have the ability to use this informative advantage to create excellent value for consumer (Gunarathne, 2015). The concept of marketing orientation suggests that the organisation, through collecting information, actually wants to find out about consumer requirements and how to prepare it adequately for responding to these requirements (Hyder and Chowdhury, 2015).

It is well known that market orientation is treated as a very important component of enterprise survival capability (Neneh, 2016). As such, market orientation has been identified and recognized as a source of competitive advantage and is an important determinant of business success. Enterprises that have adopted and apply the concept of market orientation tend to be more efficient and have better market performance manifested through profitability, consumer retention rate, consumer satisfaction, innovation, sales rates and successful launch of new products (Gudlaugsson and Schalk, 2009). Also, through market orientation it is possible to achieve closer relationship with consumers, so it is possible to react quickly and flexibly to their desires and needs (Reijonen et al., 2012). Most of the researchers have found out the same, namely that market orientation has a positive effect on business performance, which is manifested through the development of new products, sales growth, profitability, return on investment (ROI) etc. First of all, market orientation is a factor in achieving organizational efficiency (Sin et al., 2005), which enables the enterprise to better understand its environment and especially consumers (Protcko and Dornberger, 2014). The impact of market orientation on the business performance of small and medium enterprises also represents researchers' interest (Mahmoud, 2011; Shehu and Mahmood, 2014). They concluded that the higher the level of market orientation, the higher the level of business performance of the company. Among other things, a significant correlation has been established between market orientation, organizational culture and business performance.

Although many measurement scales have been developed over the last twenty years for measuring market orientation, one of the most commonly used is the MKTOR scale developed by Slater and Naver (1993), which contains basic components: consumer orientation, competition orientation, and cross-functional co-ordination. Given the new socioeconomic circumstances that imply inclusion of components of social or ecological issues through socially responsible business policies in order to achieve sustainability in society and organization, it is obvious that the existing main market models of market orientation, including MKTOR, do not include according to their conceptual structure, validation of the mentioned elements. It is clear that demands and expectations related to the realization of the sustainability program have a strong impact on the business sector and represent an issue in terms of defining the position of corporate sector in wide society. Contemporary settings for creating and implementing business models are achieving optimum and constant results through usual business activities, but considerable attention is also paid to the development of community welfare for what is needed to be changed usual proceeding. Therefore, to achieve optimal business performance, it is essential to include elements of sustainability.

Based on the existing measuring scale developed by Slater and Naver (1993), new variable is added "Orientation to social benefit" into an existing model (Gunarathne, 2015). Conceptualization of a new model of market orientation named NEWMKTOR suggested by Gunarathne (2015) arose from MKTOR model. The new element of this model is "Orientation to social benefit" variable, with which it is possible to overcome the weaknesses of the existing model. NEWMKTOR model explains that orientation towards long-term profitability must be based on market orientation activities by thinking of a deeper and new way, which presumes orientation to society and nature.

During the development of the new model, the social responsibility and social marketing programme settings were applied, which broadly cover all the issues related to the sustainability.

Methodological background

Sample. The study included 83 representatives of agricultural and food processing enterprises from seven counties of north-western Croatia. Of the total number of respondents, 57 were male (69 %), while 26 were women (31 %). On average, respondents had 28.5 years of work experience. The sample was dominated by small businesses (86 %). The sample contained unequal proportion of men (69 %) and women (31 %). All respondents were equally distributed in age ranges: 26 were younger than 30 year old; 28 were within the age range from 30 – 39; 28 of them in age range from 40 – 49, and 17 respondents were older than 50 years. Out of 83 respondents, 54 had high qualification level and 31 had high school education level. Of the total number of representative enterprises, 57 belonged to the food processing sector; 20 to the agriculture sector and 6 were mixed.

Instrumentation. Social benefit orientation was measured using the revised model of measurement of market orientation (NEWMKTOR) (Gunarathne, 2015), which includes new element of social benefits (Gunarathne, 2015). The NEWMKTOR measurement scale was created upon MKTOR model (Narver and Slater, 1990) by adding new group of items related to orientation to social benefits. It consisted of 29 items in three sub-scales representing four variables. This measurement scale represents the attitudes of respondents regarding the issues of competitive business efficiency, the implementation of the concept of socially responsible business, information dissemination on social benefits and market research. Responses were ranked on Likert's scale from one to five, where one meant totally disagree, and five fully agree with the statement. The items related to the *enterprise's competitive performance* represent the dependent variable (ECP). It consisted of six items measuring the effective business performance, differentiation versus competition, price positioning, negotiating ability in the procurement market, brand strength and corporate image. The questionnaire contained three independent variables as well: *market research* (MRS) with 8 items, *information dissemination on social benefits* (IDS) with 7 items and *socially responsible marketing planning* (SRM) with 7 items.

The reliability of a questionnaire was tested using Cronbach's alpha statistical method. The reliability of the dependent variable (ECP) is considered reliable ($\alpha=0.940$). The reliability of independent variables was determined too, for *market research* (MRS) ($\alpha=0.909$), *information dissemination on social benefits* (IDS) ($\alpha=0.874$) and *socially responsible marketing planning* (SRM) ($\alpha=0.652$).

Research results and discussion

Values of arithmetic meanings are interpreted where it means $M > 3.50$ exceptionally, $3.00 < M < 3.49$ average, $M < 3.00$ below average. The dependent variable of the *enterprise's competitive performance* was established on an average level ($M=3.22$; $SD=1.04$), as well as independent variable *socially responsible marketing planning* ($M=3.17$; $SD=0.87$). Independent variables *market research* ($M=3.60$; $s=0.97$) and *information dissemination on social benefits* ($M=3.73$; $SD=0.96$) they were above average.

In order to establish the initial relation, that is, the strength of the relation between the variables in the proposed model (dependent and independent variables), the correlation matrix is calculated, which shows which independent variables have the greatest influence on the dependent variable (Table 1).

Table 1

Correlation matrix of dependent and independent variables

		ECP	IDS	MRS	SRM
Pearson Correlation	ECP	1.000	.034	.533	.434
	IDS	.034	1.000	-.036	-.106
	MRS	.533	-.036	1.000	.239
	SRM	.434	-.106	.239	1.000
Sig. (1-tailed)	ECP	.	.381	.000	.000
	IDS	.381	.	.374	.169
	MRS	.000	.374	.	.015
	SRM	.000	.169	.015	.
N	ECP	83	83	83	83
	IDS	83	83	83	83
	MRS	83	83	83	83
	SRM	83	83	83	83

Source: author's calculations based on own research

From the correlation matrix it is evident that independent variables *market research* ($R=0.533$; $p=0.000$) and *socially responsible marketing planning* ($R=0.434$; $p=0.000$) are statistically significantly correlated with the dependent variable. While on the other hand, independent variable *information dissemination on social benefits* ($R=0.034$; $p=0.381$) it is not statistically significantly correlated with the dependent variable *enterprise's competitive performance*.

With the impact of variable *market research* on *company's competitive performance* a medium strong positive correlation was established ($R=0.533$); therefore; it can be concluded that the importance of segmentation, consumer behaviour, competition, market influence, and factors affecting the enterprise's overall performance in terms of achieving competitiveness is of great importance. This means that marketing managers need to take care of all segments of research in the sense of achieving optimal marketing orientation, since only with the full knowledge of their own consumers, competition strategies as well as the legislative framework or changing market dynamics it will be possible to accurately adjust to all market demand.

Integration of social responsibility elements into business models is a relevant indicator of improving strategic and long-term business performance. Therefore, it is necessary that the conventional perspective of business model planning be improved with the inclusion of aspects of social, but also with other forms of sustainability, at all stages of their planning and implementation. Thus, it is possible to understand the notion of socially responsible marketing planning. A good number of existing business models are limited because they are focused on seeking short-term value-oriented revenue and therefore fail to promote business accountability (Porter and Kramer, 2011). Presenting solutions of the reduction of the company's negative impacts on society and the environment, benefits are gained for internal and external stakeholders such as suppliers, customers, consumers, the local community etc. (Bocken et al., 2014). In this case, for independent variable *socially responsible marketing planning* a relatively weak positive correlation has been established ($R=0.434$). Although somewhat weaker in intensity, it is still strong enough to take into account its importance and impact on the development of competitiveness status.

In order to fully perform the regression analysis of the model, the indicators of regression representativeness of the total model had to be established (Table 2).

Table 2

Evaluation of the representativeness of the regression model

R	R ²	Adjusted R ²	Estimate standard error	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.625*	.391	.368	.82413	.391	16.903	3	79	.000

Source: author's calculations based on own research

In this case, it was used adjusted determination coefficient $R^2_{kor}=0.368$, which means that independent variables (3) explained 39 % variance of dependent variable. Although it is desirable that the regression models explain as much as greater percentage of variance of the dependent variables, this value can be considered satisfactory and allows the representativeness of the model. The model is also statistically significant ($p=0.000$).

In the next step, it is possible to show the final regression model, the way and the strength of the influence of independent variables on the *enterprise's competitive performance* (Table 3).

Table 3

Coefficients of the regression model

Model		Non-standardized coefficients		Standardized coefficients	t	Sig.	95.0 % Confidence Interval for B	
		B	Std. Error	Beta (β)			Lower Bound	Upper Bound
1	(Constant)	-.140	.586		-.239	.812	-1.306	1.027
	IDS	.092	.095	.086	.969	.335	-.097	.281
	MRS	.485	.096	.456	5.046	.000	.294	.677
	SRM	.399	.109	.334	3.672	.000	.183	.615

Source: author's calculations based on own research

From the enclosed table of coefficients of regression analysis, it is possible to notice that variables *market research* and *socially responsible marketing planning* have statistically significant influence on *enterprise's competitive performance* ($p=0.000$). In the case of dependent variable, *information dissemination on social benefits* it is obvious that it doesn't have statistically significant influence on *enterprise's competitive performance* ($p=0.335$).

Furthermore, a non-standardized coefficient (B) for independent variable *market research* is 0.485. This means that each unit change of the independent variable *market research* increases the enterprise's competitive efficiency by 0.485 times.

Regression model suggests that in the case of independent variable *socially responsible marketing planning* its unit increase will boost the company's competitive performance by 0.399 times.

Influence of independent variable *information dissemination on social benefits* on *enterprise's competitive performance* is not significant, nor non-standardized regression coefficients (B) have no multiplying significance ($B=0.092$). Also, any changes in its standard deviation will not significantly affect the change of the standard deviation of the dependent variable ($\beta=0.086$).

Conclusions, proposals, recommendations

- 1) In the case of market orientation more pronounced elements of social benefit, the enterprise's competitive business efficiency is better. Namely, according to the conducted research and the proposed structure, it is evident that enterprises that promote and develop market research and conduct socially responsible marketing planning can have a significant impact on the development of their competitive performance.

- 2) It can be concluded that enterprises need to invest in market research, consumer demand research, patterns of behaviour, competition, procurement market, recognition of potential and actual stakeholders that can affect business operations etc., in order to get wider perspective of possible stakeholder influences, which shape the organizational culture and help to understand external marketing environment.
- 3) Strategic marketing planning should involve as much elements of social responsibility as possible, but also ecological and economic as well. In such a case, besides the awareness of the company's representatives (owners or managers), it is also necessary to encourage education and training of employees for such understanding of marketing, towards increased adoption of a sustainability in all management patterns.
- 4) Information dissemination on social benefits for the stakeholders has almost no impact on the enterprise's competitive performance in the researched organisations. Therefore, management efforts in the future must be focused precisely on developing new innovative models of cooperation and sharing of business information with stakeholders.
- 5) In accordance with the principles of stakeholder theory, attitudes and opinions of wider number of involved stakeholders can be the basis for a more comprehensive and effective marketing strategy. Constant appreciation and communication with all stakeholders in the business environment must be developed or taken into account as one of the factors for creating of competitive enterprise.

Bibliography

1. Bocken, N.M.P. , Short, S.W.P. , Rana, P. , Evans, S. (2014). A Literature and Practice Review to Develop Sustainable Business Model Archetypes. *Journal of Cleaner Production*, Volume 65, pp. 42 – 56.
2. Christoph, B., Noll, H. H. (2003). Subjective Well-Being in the European Union during the 90s'. *Social Indicators Research*, Volume 64, Issue 3, pp. 521 – 546.
3. Gronroos, C. (2006). On Defining Marketing: Finding a New Roadmap for Marketing. *Management Theory*, Volume 6, Issue 4, pp. 395 - 417.
4. Gudlaugsson, T., Schalk, A. P. (2009). Effect of Market Orientation on Business Performance: Empirical Evidence from Iceland. *The European Institute of Retailing and Services Studies*, Volume 6, pp. 1 - 17.
5. Gunarathne, U. (2015). Measurement Model of the Market Orientation: New Theoretical Framework NEWMKTOR Model. *International Journal of Management and Commerce Innovations*, Volume 3, Issue 1, pp. 255 - 263.
6. Hyder, A. S., Chowdhury, E. H. (2015). Market Orientation in Service Firms – An International Comparative Study. *Procedia - Social and Behavioral Sciences*, Issue 175, pp. 16 -23.
7. Jaworski, B. J, Kohli, A. K. (1993). Market Orientation: Antecedents and Consequences. *Journal of Marketing*, Volume 57, pp. 53 – 70.
8. Mahmoud, M. A., (2011). Market Orientation and Business Performance among SMEs in Ghana. *International Business Research*, Volume 4, Issue 1, pp. 241 – 251.
9. Mbare, O. (2004). The Role of Corporate Social Responsibility (CSR) in the New Economy. *Electronic Journal of Business Ethics and Organization Studies*, Volume 9, Issue 1. Retrieved: <http://ejbo.jyu.fi>. Access: 16.01.2018.
10. Narver, J. C. & Slater, S. F., (1990). The Effect of Market Orientation on Business Profitability. *Journal of Marketing*, Volume 54, Issue 4, pp. 20 – 36.
11. Neneh, B. N. (2016). Market Orientation and Performance: The Contingency Role of External Environment. *Environmental Economics*, Volume 7, Issue 2, pp. 130 – 137.
12. Nuansate, S., Mohd Mokhtar, S. S. (2013). The Moderating Effect of Organizational Culture between Proactive Market Orientation and Hotel Business Performance in Thailand. *Journal of Business and Economics*, Volume 4, Issue 1, pp. 66 – 75.
13. Porter, M. E., Kramer M. (2011). Creating Shared Value: How to Reinvent Capitalism - and Unleash a Wave of Innovation and Growth. *Harvard Business Review*, Volume 89, pp. 62 – 77.
14. Protcko, E., Dornberger, U. (2014). The Impact of Market Orientation on Business Performance – The Case of Tatarstan Knowledge-Intensive Companies. *Problems and Perspectives in Management*, Volume 12, Issue 4, pp. 225 – 231.
15. Reijonen, H., Laukkanen, T., Komppula, R., Tuominen, S. (2012). Are Growing SMEs More Market-Oriented and Brand-Oriented?. *Journal of Small Business Management*, Volume 50, Issue 4, pp. 699 - 716.

16. Shehu, A. M., Mahmood, R. (2014). The Relationship between Market Orientation and Business Performance of Nigerian SMEs: The Role of Organizational Culture. *International Journal of Business and Social Science*, Volume 5, Issue 9, pp. 159 – 168.
17. Sin, L.Y.M., Tse, A.C.B., Heung, V. C.S., Yim, F. H.K. (2005). An Analysis of the Relationship between Market Orientation and Business Performance in the Hotel Industry. *Hospitality Management*, Volume 24, pp. 555–577.
18. Veludo de Oliveira, T. M. (2006). Society versus Business Organization: The Strategic Role of Marketing. *Electronic Journal of Business Ethics and Organization Studies*, Volume 11, Issue 1, pp. 26 – 29.

PERCEPTION OF CORPORATE SOCIAL RESPONSIBILITY– A COMPARISON STUDY BETWEEN POLISH AND SLOVAK CONSUMERS

Renata Matysik-Pejas¹; Dr. Ing.; **Elena Horska**²; prof. Dr. Ing.

¹Agricultural University in Krakow, Poland; ²Slovak University of Agriculture in Nitra, Slovakia

Abstract. Corporate Social Responsibility is a modern business philosophy, according to which the organization has to pursue their economic goals, and at the same time be responsible for the impact on the environment and quality of society life. One of the direct interaction groups of enterprises, representing an increasingly important area of CSR, are consumers. Achieving measurable effects of CSR activities is possible under condition that consumers are aware of them, have positive perception of the specific messages and that this raise the credibility of the organization in their opinion. The main goal of the study was to determine which areas of Corporate Social Responsibility implemented by food producers are perceived as the most important by consumers from Poland and Slovakia. The primary information used for the analyses and inference was derived from two independent consumer studies conducted during the period from November 2017 to January 2018 in Slovakia (Nitra Region) and in Poland (Malopolska Province). PAPI method was used for collection of the empirical material. 279 respondents participated in the study conducted in Slovakia and 272 respondents in Poland. For both consumers from Poland and Slovakia relationships with employees are the most important area of CSR. Developing good relationships with this stakeholder group should include meeting obligations, honesty, dialogue and cooperation, but also increasing employees' economic satisfaction. If a gap exists in meeting the employees' needs, it is impossible to build a high reputation of the enterprise in the area of social responsibility.

Key words: CSR, consumers, Poland, Slovakia.

JEL code: D19, L21, M14

Introduction

Increased interest in social responsibility, perceivable in recent years, results from many causes. They include: globalisation, progressing degradation of the natural environment, changing socio-cultural conditionings, a change of awareness of employees and the whole society and growing competition (Ratajczak, Woloszyn and Stawicka, 2012).

Corporate social responsibility (SCR) has its roots in ethical standards with have a character of extra-judicial instruments, supplementing the law and filling in the space between its regulations and so called principles of good coexistence (Demkow, Sulich, 2017). This aspect has been emphasized by Davis (1973), according to whom social responsibility starts where the influence of law ends. CSR concept also fits in a wider trend of sustainable development which is a philosophy of running economic activity according to the principle of combined economic, social and ecological aims and minimising the negative impact of the organisation on the environment, at simultaneous striving to maintain durability and harmony of the world development (Witek-Crabb, 2016). CSR is classified to non-material resources, which create the value of business and influence the building of competitive advantage (Bobola, 2014).

CSR is defined as an idea, owing to which at the stage of building their strategies, enterprises voluntarily and with full responsibility consider the social interests and environmental protection (Balaban et al., 2012; Baumgartner, 2014), but also build permanent positive relations with various stakeholder groups, such as employees, customers, business partners, local communities or local and state administration (Oeberseder et al., 2013; Gangone, Ganescu, 2014; Wu, Lin, 2014).

Social awareness of businesses operations in the area of CSR seems low (Bhattacharya and Sen, 2004). Many consumers lack information whether a given firm gets involved in voluntary

service, or in activities for the society or environment. Therefore, announcing CSR initiatives to consumers is very important. One of the key aspects of good practices in the area of CSR are efficient and clear communication channels. Efficient two-way communication of a firm with the outer environment serves to increase its input for improving life standards of a given community, because it allows to determine the issues and potential problems which the business should face and, after realising some defined initiatives, it should disseminate the results of undertaken activities among the interested parties (Gluszek, 2013). Owing to communication of initiatives and social involvement an enterprise stimulates positive attitudes towards itself, minimises losses of reputation and protects against negative outcomes of possible crisis situations (Fryzel, 2014). Achieving measurable effects of CSR activities is possible under condition that consumers are aware of them, have positive perception of the specific messages and that this raise the credibility of the organization in their opinion.

The aim of the study was to determine which areas of Corporate Social Responsibility implemented by food producers are perceived as the most important by consumers from Poland and Slovakia.

In order to achieve the aim, the following research tasks were established:

- to determine the importance for consumers of selected ways of engaging of food producers in CSR,
- to applicate an analytical method allowing to group assessed ways of engaging food producers in CSR in order to detect hidden interrelations between them,
- to establish a hierarchy of highlighted CSR areas for consumers from Poland and Slovakia.

Data and methodology

The primary information used for the analyses and inference was derived from two independent consumer studies conducted during the period from November 2017 to January 2018 in Slovakia (Nitra Region) and in Poland (Malopolska Province). PAPI method was used for accumulation of the empirical material. The same questionnaire (in an appropriate language version) was used for both studies. 279 respondents participated in the study conducted in Slovakia (RSK) and 272 respondents (RPL) in Poland. The selection of respondents for the sample was non-randomised.

Women prevailed in both respondent groups from Slovakia and Poland, constituting respectively 63.7 % and 54.4 %. Young persons, aged below 25 were dominant in the age structure of the analysed groups, their proportion in RSK group was 43.9 % and in RLP group 37.5 %. Persons living in rural areas made up a majority (56.1) of the respondents in Slovakia, whereas city dwellers prevailed among the respondents in Poland (52.9 %).

Analysis of the empirical material was conducted using factor analysis. Factor analysis is a group of exploratory methods and statistical procedures allowing to reduce a big number of studied variables to a considerably smaller number of mutually independent (non-correlated) factors (Fabrigar et al., 1999). The identified factors represent so called hidden variables, which are not directly observable. They also retain a part of information contained in the primary variables. Principle components method was applied in the conducted analysis for the factors identification. The factors rotation was conducted using varimax method, which allows for the simplification of the factors interpretation. Several solutions with a lower or higher number of factors (taking into consideration both Kaiser test and scree test) were tested during the analysis and subsequently a solution with three factors was selected, which is the best from the point of view of the obtained

results and their possible interpretation (Williams et al., 2010). Variables with the highest loadings were isolated within the factors, which fulfilled the condition that the minimum correlation level is 0.5 (Brown, 2009).

Research results and discussion

The scope of activities, which enterprises may undertake while realising the assumptions of Corporate Social Responsibility for individual stakeholder groups, the natural environment, education or social involvement is very wide. The presented studies analysed 23 potential components of such activity with reference to food enterprises. The respondents assessed them on a five-point scale, where 1 denoted little importance, whereas 5 very big importance. Application of factor analysis allowed to reduce the primary set of 23 variables for each investigated respondent group to three factors, which explain respectively 53.4 % of total variability in case of studies conducted on the respondent group from Poland (RPL) and 54.5 % for the studies conducted among the respondents from Slovakia (RSK).

Table 1

Eigenvalues of isolated factors for respondent group from Poland (RPL) and respondent group from Slovakia (RSK)

Factors	RPL			RSK		
	F1PL	F2PL	F3PL	F1SK	F2SK	F3SK
Eigenvalue of factor	8.23	2.43	1.63	6.95	2.80	2.78
Percentage of the total of eigenvalues (variance)	35.77	10.58	7.07	30.22	12.16	12.08
Cumulative eigenvalue	8.23	10.66	12.29	6.95	9.75	12.52
Cumulative % of eigenvalues	35.77	46.35	53.42	30.22	42.37	54.45

Source: author's calculations based on own research

Both in case of studies conducted in RPL and SRK group, the first isolated CSR factor concerns "the enterprise relations with its employees". Results of analysis obtained for RPL allow for an observation, that this factor (F1PL) whose eigenvalue was 8.23 explained 35.85 % of the total variability of the investigated phenomenon. On the other hand, the eigenvalue of the first factor (F1SK) for RSK had a lower value, i.e. 6.95 and explained 30.2 % of the total variability of the phenomenon.

Table 2

Results of factor analysis for respondent group from Poland (RPL) and respondent group from Slovakia (RSK)

Variables	RPL			RSK		
	Factor F1PL	Factor F2PL	Factor F3PL	Factor F1SK	Factor F2SK	Factor F3SK
Conducting business ethically	0.322	0.194	0.428	0.093	0.316	0.375
Avoiding dishonest competition	0.139	0.244	0.528	0.103	0.536	0.200
Offering safe products	0.252	-0.049	0.771	0.220	0.807	-0.044
Offering honest product prices	0.389	0.009	0.658	0.194	0.778	0.040
Providing clear information about the business	0.134	0.505	0.460	0.088	0.807	0.043
Providing clear information about products	0.160	0.178	0.738	0.181	0.783	0.077
Running a website	0.096	0.564	-0.027	0.148	0.230	0.179
Running e.g. telephone consumer service	-0.050	0.648	-0.010	0.100	0.681	0.113
Compliance with labour law	0.536	0.135	0.324	0.626	0.419	-0.077
Offering decent wages	0.716	0.101	0.402	0.747	0.220	-0.008
Creating friendly atmosphere in the workplace	0.720	0.203	0.336	0.743	0.131	0.140
Equal treatment of employees	0.782	0.153	0.212	0.858	0.164	0.067
Creating stabile working conditions	0.718	0.002	0.280	0.835	0.112	-0.030
Training and development of employees	0.657	0.148	0.231	0.751	-0.035	0.229
Promotion opportunities	0.729	0.217	0.118	0.816	0.162	0.125
Supporting employees' families	0.713	0.378	-0.090	0.638	0.200	0.180
Compliance with environmental legislation	0.319	0.647	0.063	0.323	0.009	0.667
Reduction of waste volume	0.212	0.688	0.341	0.289	-0.118	0.699
Reduced energy and water consumption	0.169	0.674	0.367	0.241	-0.025	0.762
Charity activities	0.486	0.537	-0.141	-0.183	0.232	0.711
Social projects	0.186	0.681	0.044	-0.076	0.146	0.689
Promotion of art and education	0.391	0.596	-0.150	0.010	0.122	0.606
Creating new jobs	0.443	0.359	0.210	0.274	0.517	0.194

Source: author's calculations based on own research

For both investigated groups RPL and RSK the same eight variables were correlated with the first factor. The studies indicate that the element with the highest factor loading, both in RPL and RSK group turned out to be the issue of equal treatment of the employees; however, the value for RSK group was higher (0.858) than for RPL group (0.782). In RSK group factor loadings of the other variables had values from 0.835 for the "creating stabile working conditions" variable to 0.626 for "compliance with labour law" variable. Values of the other loadings in RPL group for this factor fluctuated from 0.729 for "promotion opportunities" variable to 0.539 for the same variable as in RSK group.

In case of the second and third isolated factors no such similarities occurred for groups RPL and RSK and these were formed (with only some exceptions) by different variables.

In RSK group, the second identified factor (F2SK) with eigenvalue 2.80 explained 12.2 % of total variability of the set. It was formed by seven variables, of which the character of six corresponded to the area relations with consumers. The "offering safe products" variable obtained

the highest value of the factor loading (0.807), whereas "creating new jobs", which by its character differed from the others, received the lowest value (0.517).

In RPL group, the second factor (F2PL) had its eigenvalue on the level of 2.43 and represented 10.6 % of variance of the set. The variables, which were correlated with it were diversified in their character, because three of them represented the area of environmental protection, three were connected with social area, whereas the other three represented relations with consumers. The highest value of factor loading characterised "reduction of waste volume" variable (0.688), whereas the lowest "providing clear information about the enterprise" variable (0.505).

The eigenvalue of the third factor (F3SK) obtained for RSK group was 2.78 and in fact was identical as for the second factor. Thereby it also explained a similar value of the variance of the set (12.08 %). The factor was formed by seven variables connected with such areas of CSR as environmental and social issues. Among the individual variables, "reduced energy and water consumption" variable had the highest value of factor loading (0.762), whereas the lowest was noted for "promotion of art and education" variable (0.606).

The third factor (F3PL) isolated for RPL group had the eigenvalue lower than for RSK group. In this case it was 1.63 and explained 5 pp less variances of the set than in case of RSK group. This factor constituted of four variables characterising the enterprise market relations, however the variable with the highest factor loading was "offering safe products" (0.771), whereas the lowest factor loading was attached to "avoiding dishonest competition" (0.528).

Out of the 23 analysed variables, one "conducting business ethically" variable was not included in any of the three identified factors for both analysed groups.

Table 3

**Characteristics of factors identified for respondent group from Poland (RPL)
 and respondent group from Slovakia (RSK)**

Factor	RPL	Factor	RSK
Factor F1PL	Area: relations with employees	Factor F1SK	Area: relations with employees
	Equal treatment of employees Promotion opportunities Creating friendly atmosphere in the workplace Creating stabile working conditions Offering decent wages Supporting employees' families Training and development of employees Compliance with labour law		Equal treatment of employees Creating stabile working conditions Promotion opportunities Training and development of employees Offering decent wages Creating friendly atmosphere in the workplace Supporting employees' families Compliance with labour law
Factor F2PL	Area: environmental-social relations	Factor F2SK	Area: relations with consumers
	Reduction of waste volume Social projects Reduced energy and water consumption Running e.g. telephone consumer service Compliance with environmental legislation Promotion of art and education Running a website Charity activities Providing clear information about the business		Offering safe products Providing clear information about the business Providing clear information about products Offering honest product prices Running e.g. telephone consumer service Avoiding dishonest competition Creating new jobs
Factor F3PL	Area: relations with consumers	Factor F3SK	Area: environmental-social relations
	Offering safe products Providing clear information about products Offering honest product prices Avoiding dishonest competition		Reduced energy and water consumption Charity activities Reduction of waste volume Social projects Compliance with environmental legislation Promotion of art and education

Source: author's calculations based on own research

It has been confirmed in the literature that these days the society perceives positively the organisations, whose employees feel financially safe and are sure of their employment in the perspective of the succeeding years (Rok, 2004). Employees form an internal stakeholder group of each business, for which they are simultaneously the key resources determining its success or failure (Azim, 2016). The way in which the employees are treated, whether their rights are respected and on which principles the staff policy is based significantly influence the degree of employee integration with the enterprise, their emotional involvement in the assigned tasks, satisfaction from work and loyalty to the organisation (Gadomska-Lila, 2012; Lee et al., 2013; Suh, 2016). Application by the enterprise of clear and stabile principles of staff policy causes that the employees perceive their workplace positively, which owing to this fact becomes for them the source of safety and mental comfort (Bartkowiak, 2011). Relationships of this type have a direct influence on employee commitment to work, which means that they become legitimate members of the enterprise. One of important aspects of CSR is motivating employees. In this context promotion may be indicated as an important element of motivation connected with a change of an employee's position in the enterprise organisational structure. At the same time, it fulfils the need for appreciation and positive self-assessment, but also gives access to higher values and improving employee's living standards (Mazur, 2013). Another important aspect of the enterprise relationship with employees are trainings. Personal development of the employees takes place when their

knowledge in the area necessary at the position they occupy is improved. Owing to trainings employees gain additional professional skills and their self-esteem, as well as the sense of belonging to the firm grow (Kalinowska, 2012).

Consumers constitute an external group of a business stakeholders. The area of relationships with consumers is a vast CSR category, among other comprising provision of clear information about the enterprise and its products and offering safe products for honest prices. Due to a specific character of food products, the enterprises in this branch are in the first place obliged to provide honest information for the consumers about their product composition and nutritional values. All the relevant data – the shelf life date and allergen content should be placed on the label. Enterprises must ensure food safety (Gardner, 1993), i.e. they must know the source of origin of the components they use, control the conditions in which the products are manufactured, but also commission independent and reliable quality tests. Food enterprises are forbidden to use genetic engineering to modify food products and conceal this fact from the customers. Food producers should not label their products by certificates misleading the consumers (Spoleczna odpowiedzialnosc..., 2015). Food producers should care about their reliability towards consumers; therefore, the enterprises implementing the principles of CSR in the area of market relations, have chances for advantageous image.

The natural environment is determined as a "mute stakeholder" because it does not call for its advantages but the negative consequences of its disregard in the business activities are perceptible by all (Zelazna-Blicharz, 2013). Separating the area of environment in the CSR concept emphasizes its importance in the enterprises activities. The state of the natural environment is one of the factors influencing the life quality of society. Responsibility of enterprises towards the natural environment is interpreted as a necessity for reducing energy and raw materials consumption and limiting emissions of harmful substances and waste from production processes. Minimisation of a negative impact of production on the environment are the key activities which the enterprises may conduct to face the environmental challenges (Mazurkiewicz and Grenna, 2003).

The area of CSR activity connected with the society is perceptible as implementing the society supporting programmes, caring about the improvement of society's living standards; voluntary activities and philanthropic activities. Charity and voluntary service counteract the egoism in social life and are a sign of respect towards the most needy.

Conclusions

- 1) Basing on the conducted factor analysis three factors were identified for each of the studied respondent groups, which together with a set of variables connected with them have influence on the consumer perception of the importance of CSR realised by food producers.
- 2) For both consumers from Poland and Slovakia relationships with employees are the most important area of CSR. Developing good relationships with this stakeholder group should include meeting obligations, honesty, dialogue and cooperation, but also increasing employees' economic satisfaction. If a gap exists in meeting the employees' needs, it is impossible to build a high reputation of the enterprise in the area of social responsibility.
- 3) The second identified factor for the respondents from Slovakia and the third one for the respondents from Poland constituted the CSR area concerning the relations with consumers. These relations are fundamental for the functioning of food producers, therefore they must run

their businesses offering consumers safe products, honest prices and reliable marketing. It provides a basis for creating a positive image of the enterprise among consumers.

- 4) For the respondents from Poland the second distinct factor was connected with the area described as environmental-social relations. For the respondent group from Slovakia the same area constituted the third of the identified factors. The environmental and social aspects are also basic assumptions of CSR. Long-term and measurable social investments undertaken by enterprises improve their relations with stakeholders. On the other hand conducting operations accountable to the environment contributes to sustainable development, including health and wellbeing in society.

Bibliography

1. Azim, M.T. (2016). Corporate Social Responsibility and Employee Behavior: Mediating Role of Organizational Commitment. *Revista brasileira de gestao de negocios*. Vol.18 (60), pp: 207-225, doi: 10.7819/rbgn.v18i60.2319.
2. Balaban, O., Cicioglu, F., Okutan, E. (2012). A Survey Aimed at Role and Importance of Non-Governmental Organizations in the Corporate Social Responsibility (CSR). *Procedia - Social and Behavioral Sciences*. 58, 1174-1182, doi:10.1016/j.sbspro.2012.09.1099.
3. Bartkowiak, G. (2011). Dobrostan pracowników, poziom „zdrowia organizacji” a ich zadowolenie z pracy i zaangażowanie w osiaganie celow organizacji (Employees Well-Being, Job, Satisfaction, "Organizational Health" and Workers' Engagement in Organizational Goals). *Prace Naukowe Uniwersytetu Ekonomicznego we Wroclawiu*. No. 223, pp. 200-210.
4. Baumgartner, R. J. (2014). Managing Corporate Sustainability and CSR: A Conceptual Framework Combining Values, Strategies and Instruments Contributing to Sustainable Development. *Corporate Social Responsibility and Environmental Management*, 21(5), pp. 258-271, doi: 10.1002/csr.1336.
5. Bhattacharya, C. B., Sen, S. (2004). Doing Better at Doing Good: When, Why and How Consumers Respond to Corporate Social Initiatives. *California Management Review* 47 (Fall), pp. 9-25.
6. Bobola, A.M. (2014). Społeczna odpowiedzialność biznesu jako zasob niematerialny kształtujący przewagę konkurencyjną przedsiębiorstw spożywczych (Corporate Social Responsibility as an Intangible Assets Shaping the Competitive Advantage of Food Companies). *Roczniki Naukowe SERiA*, XVI (3), pp. 36-42.
7. Brown, J.D. (2009). Choosing the Right Type of Rotation in PCA and EFA. *JALT Testing & Evaluation SIG Newsletter*. 13 (3), pp. 20 -25.
8. Davis, K. (1973). The Case Against Business Assumption of Social Responsibilities, *Academy of Management Journal*, Vol.16.ń
9. Demkow, K., Sulich, A. (2017). Wybrane wyzwania związane ze społeczną odpowiedzialnością dużych i średnich podmiotów gospodarczych (Selected Challenges Related to Corporate Social Responsibility of Medium and Large Business Entities). *Marketing i Rynek*. No. 11, pp. 42-52.
10. Fabrigar, L.R., Wegene, D.T., MacCallum, R.C., Strahan, E.J. (1999). Evaluating the Use of Exploratory Factor Analysis in Psychological Research. *Psychological Methods*. Vol. 4. Iss.: 3, pp. 272-299, doi: 10.1037/1082-989X.4.3.272
11. Fryzel, B. (2014). CSR i emocjonalność konsumenta - czy społecznie wrażliwi konsumenci racjonalizują swoje wybory ekonomiczne (CSR and Consumer's Emotionality. Do Socially Sensitive Consumers Rationalize their Economic Choices?). *Studia Ekonomiczne*. No. 180, pp. 88-98.
12. Gadomska-Lila, K. (2012). Społeczna odpowiedzialność biznesu wobec pracowników (Corporate Social Responsibility Towards Employees). *Management and Business Administration. Central Europe*. 2 (115), pp. 41-52, doi: 10.7206/mba.ce.2084-3356.4.
13. Gangone, A.D., Ganesu, M.C. (2014). Corporate Social Responsibility in Emerging and Developing Economies in Central and Eastern Europe - a Measurement Model From the Stakeholder Theory Perspective. *Economic Research - Ekonomska Istrazivanja*. 27(1), pp. 539-558, doi: 10.1080/1331677X.2014.967535
14. Gardner, S. (1993). Consumers and Food Safety: a Food Industry Perspective. Retrieved: <http://www.fao.org/docrep/V2890T/v2890t05.htm>. Access: 30.01.2018.
15. Gluszek, E. (2013). Wykorzystywanie inicjatyw społecznych w budowaniu atrybutów dobrej reputacji przedsiębiorstwa (Social Initiatives in Building Key Ingredients of Star-Quality Corporate Reputation). *Prace Naukowe Uniwersytetu Ekonomicznego we Wroclawiu*. No.288, pp. 22-36.
16. Kalinowska A. (2012). Wartość dla pracowników w koncepcji CSR (Value for Employees in CSR). *Zeszyty Naukowe Uniwersytetu Szczecińskiego, Finanse, Rynki Finansowe, Ubezpieczenia*. No. 55, pp. 327-344.
17. Lee, E.M., Park, S., Lee, H. (2013). Employee Perception of CSR Activities: Its Antecedents and Consequences. *Journal of Business Research*. No. 66, pp. 1716-1724, doi: 10.1016/j.jbusres.2012.11.008.
18. Mazur, B. (2013). Motywowanie pracowników jako istotny element zarządzania organizacją (Motivating Employees as a Key Part of Organization Management). *Nauki Społeczne*, No. 2(8), pp. 156-182.
19. Mazurkiewicz, P., Grenna, L. (2003). Corporate Social Responsibility and Multi-Stakeholder Dialogue. Towards Environmental Behavioral Change. *Discussion Paper*. May 2003, World Bank.

20. Oeberseder, M., Schlegelmilch, B., Murphy, P. E. (2013). CSR Practices and Consumer Perceptions. *Journal of Business Research*. 66(10), 1839-1851, doi: 10.1016/j.jbusres.2013.02.005.
21. Rok, B. (2004). *Odpowiedzialny biznes w nieodpowiedzialnym swiecie* (Responsible Business in an Irresponsible World), Akademia Rozwoju Filantropii w Polsce – Forum Odpowiedzialnego Biznesu, Warszawa, p. 37.
22. Społeczna odpowiedzialność biznesu w polskich realiach. Teoria i praktyka (Corporate Social Responsibility in Polish Realities. Theory and Practice). 2015. Retrieved: <http://www.centrumcsr.pl/wp-content/uploads/2015/12/Spo%C5%82eczna-odpowiedzialno%C5%9B%C4%87-biznesu-w-polskich-realiach.-Teoria-i-praktyka.pdf>. Access: 30.01.2018.
23. Suh, Y. J. (2016). The role of relational social capital and communication in the relationship between CSR and employee attitudes: a multilevel analysis. *Journal of Leadership & Organizational Studies*. 23, pp. 410-423, doi: 10.1177/1548051816637564.
24. Williams, B., Brown, T., Onsmann, A. (2010). Exploratory Factor Analysis: A Five-Step Guide for Novices. *Australasian Journal of Paramedicine*. 8(3), pp. 1-13.
25. Witek-Crabb, A. (2016). Ewolucyjne modele CSR – przegląd koncepcji rozwoju społecznej odpowiedzialności biznesu (Evolutionary Stage Models of Corporate Social Responsibility – Theory Review). *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, No. 444, pp. 541-558.
26. Wołoszyn, J., Stawicka, E., Ratajczak, M. (2012). *Społeczna odpowiedzialność małych i średnich przedsiębiorstw agrobiznesu z obszarów wiejskich* (Social Responsibility of Small and Medium-Sized Agribusiness Enterprises from Rural Areas). SGGW, Warszawa, 88 p.
27. Wu, S.-I., Lin, H.-F. (2014). The Correlation of CSR and Consumer Behavior: A Study of Convenience Store. *International Journal of Marketing Studies*. 6(6), pp. 66-80, doi:10.5539/ijms.v6n6p66.
28. Żelazna-Blicharz, A. (2013). *Społeczna odpowiedzialność w procesie gospodarowania a zrównoważona produkcja i konsumpcja* (Social Responsibility in the Management Process and Sustainable Production and Consumption). Politechnika Lubelska, Lublin, 221 p.

MARKETING ACTIVITIES OF ENTITIES ON THE MILK MARKET AND SUSTAINABLE CONSUMPTION OF DAIRY PRODUCTS

Katarzyna Olszewska¹, Anetta Waśniewska², Ph. D.

¹The State University of Applied Sciences in Elbląg, ²Gdynia Maritime University

Abstract. In the conditions of the global milk market, which is focused on sustainable development, the fundamental issues are the nutritional and social objectives combined with the marketing activities of the dairy market enterprises. In the market conditions significant changes may be noticed in consumer preferences in relation to products, their brands as well as market communication. Different forms of sales promotion are becoming more and more important. The result is high noticeability by consumers and a change in their purchasing decisions. Sales promotion plays an important role in balancing the dairy market and shaping desired consumer behaviour. For producers and suppliers, this means a necessity to choose the right range of products and different ways to reach consumers' awareness.

The aim of the research is to identify the key determinants that influence the consumer purchasing behaviour in the milk market and answer the question whether changes in consumers' attitudes give rise to particular implications for the marketing activities undertaken by today's entrepreneurs. The authors, basing on available reliable data generated for years 2010-2016, published by Central Statistical Office, EUROSTAT, Institute of Agricultural Economics and Food Economy and Agricultural Market Agency, identified the determinants relevant to the milk market in Poland. The years adopted for the analysis is a period of dynamic changes that took place in Poland. The set of milk market's determinants was defined in order to achieve the set goal. The variables were used for conducting examinations involving Hellwig's method to determine the value of the integral capacity of information carriers.

Key words: consumption, dairy products, marketing

JEL code: C43

Introduction

Changes in the realities of the global economy have caused the evolution not just in the production, technology or communication, but also in consumer processes that reflect the transformation of ideas and social attitudes. In terms of the global market, consumption has become a prerequisite for the functioning of economic systems (Mróz B., 2009). In the 21st century, excessive consumption leads to negative consequences not only for the economy as such, but also for the environment and society. The phenomenon can currently be observed in many countries: a waste of goods, of natural resources, of human work, environmental degradation or disparities between people. This situation has forced the emergence of new trends in consumption – greening or sustainable consumption that can be salvation for the balance of the world economy. The appearance on the market of organic and socially responsible products has become the implication for the marketing activities of modern enterprises and changes in consumer attitudes.

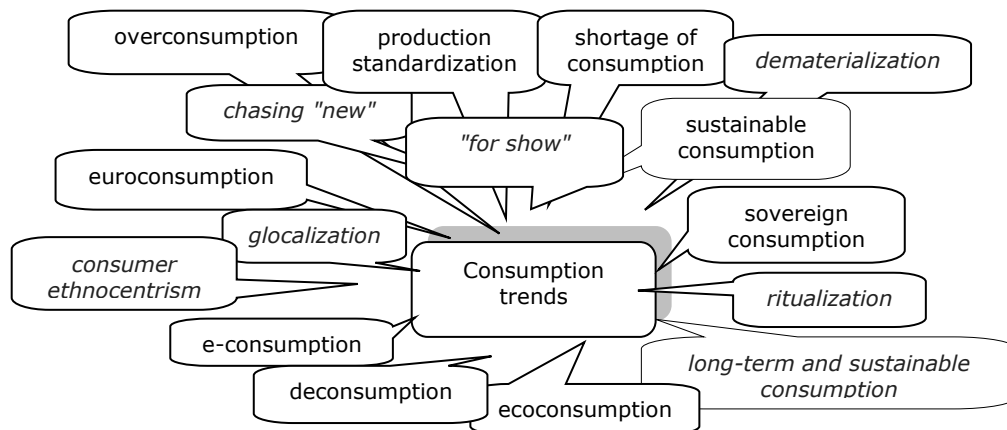
In the article, the authors try to identify the key determinants that influence the consumers' behaviour in the milk market and find the answer to the question whether changes in consumers' attitudes give rise to particular implications for marketing activities undertaken by the contemporary entrepreneurs. The importance of marketing activities and their impact on the volume of consumption is emphasized in literature. However, the authors of this article focused on available data for years 2010-2016 and, by means of the Hellwig's method, defined the determinants that have the greatest influence on the consumer purchasing behaviour in Polish dairy market.

¹Corresponding author. Tel.: +0048 691 464 035. E-mail address: k.olszewska@pwsz.elblag.pl

²Corresponding author. Tel. +0048 605 570 568. E-mail address: a.wasniewska@wpit.am.gdynia.pl

1. New trends in consumption

T. Veblen, who is the creator of conspicuous theory of consumption, significantly contributed to the development of the theory of consumption. According to him the motive for turning to consumption of goods is not the need to survive but the desire to create the possibility of demonstrating differences between people. Possession of goods causes their owners to achieve higher status (Veblen T., 2008). According to J. Baudrillard, as the wealth grows and the level of consumption increases, new needs that over time acquire a cultural, social and moral context and, as a result, move to the sphere of basic needs. This can be related to the image of an eternally insatiable consumer who is constantly looking for new consumer goods and sensations (Baudrillard J., 2006). In the second half of the 20th century, also postmodernism played an important role in the development of the trends of consumption, where the consumer is dynamic, mobile as well as creating new needs and looking for new sensations (Ślaby T., 2006). Currently, changes in the consumption of highly developed societies do not have a unified direction and a multitude of options that are mutually exclusive or complementary can be observed. New trends in consumption are shown in Figure 1.



Source: authors' study based on T. Ślaby, *Konsumpcja. Eseje statystyczne*, Difin, Warszawa 2006, p. 16.

Fig. 1. New trends in consumption

The contemporary society has great importance in the evolution of consumption and highly values the state of ownership. The previously recognized cultural values have been replaced by the pursuit of satisfaction through consumption, where, sooner than necessary, there is a desire to satisfy it (Konsument i konsumpcja..., 2006). As a result, consumerism is created as an excessive consumption of foods and services. The increase of society's incomes leads to the increase in consumption, and, thus, the need for continuous production. This entails the demand increase for natural resources, and after consumption, the collection of waste increase, contributing to environmental degradation. Unsustainable consumption of dairy products means improper use and wastage of valuable ingredients. Irrational use of these, in addition to quantitative losses, causes excessive consumption of natural resources. The condition for stopping the negative effects of consumerism must be changes which create consumption based on principles convergent with the idea of sustainable development, based on culture and ecological awareness. In the world of globalism, various organizations take initiatives of this nature, creating new trends that include greening and sustainable consumption.

Sustainable consumption by OECD definition means the use of goods and related products which respond to basic needs and bring a better quality of life, while minimising the use of natural

¹Corresponding author. Tel.: +0048 691 464 035. E-mail address: k.olszewska@pwsz.elblag.pl

²Corresponding author. Tel. +0048 605 570 568. E-mail address: a.wasniewska@wpit.am.gdynia.pl

resources and toxic materials as well as the emissions of waste and pollutants over the life cycle, so as not to jeopardise the needs of future generations (*Oslo Rountable...*, 1994; Jolly A., 2003).

As regards the food market, including the milk market, which is focused on sustainable development, nutritional and social objectives related to behaviour promotion are crucial (Sznajder M., 2008). Consumption of dairy products is generally widespread and massive, and consumers' decisions are increasingly influenced by current sales conditions.

2. Marketing activities

In the 21st century, enterprises and consumers operate in an ever-changing environment, which requires flexibility and unprecedented adaptation from entrepreneurs. In the era of globalism, consumers' behaviour, needs and expectations are different than those which were known by the marketing specialist several or dozen years ago.

Maintaining a competitive advantage over market competitors in the conditions of a hyper-competitive environment requires from the entrepreneurs constant monitoring of new trends, changes in consumption patterns, in consumer behaviour and suitable adaptation of their marketing strategies.

Having knowledge about changes in behaviour may be a competitive advantage in today's world, and the emerging new consumer trends force entrepreneurs to react through the following activities (Husak Z., 2013):

- focus on deepening the knowledge about your clients;
- involvement in various forms of dialogue with the target market - dialogue with consumers;
- personalization of the chain value - adaptation to the needs and expectations of specific consumers, ranging from product features to flexible delivery dates and convenient payment dates;
- shaping positive experiences at every stage of value creation;
- cooperation with clients and consumers as business partners - implementation of crowdsourcing projects, joint creation of new, innovative products or services.

The dairy market is increasingly influenced by the current sales conditions that result from dynamic changes in the offers of producers combined with high availability of products. To a large extent, they generate promotional sales activities (Stefańska M., 2009). According to Krajewski, the choice of dairy products and purchasing decisions are more and more often determined by the place and terms of purchase. Advertising usually gives a reason to buy and the sale's promotion offers an incentive in the place where it is offered. Everything that the consumer perceives and senses at the place of purchase has an impact on his behavior and purchasing decisions which are made in the conditions of modern trade (Krajewski K., 2011). In this situation, entrepreneurs - producers and traders show greater interest in marketing activities in the field of sales promotion. Striving for the high loyalty of consumers, entrepreneurs implement promotional strategies and marketing activities aimed directly at the store's clients and traders at the point of sales - POS (Świątkowska M., 2011).

In the Polish dairy market reality, entrepreneurs apply marketing activities in the promotion of two separate product categories: modern (yoghurt, granular cheese, UHT milk and ripening cheese) and traditional (curd, butter).

The directions of promotional activities for modern products, whose sales are intensively supported by all promotion instruments, require the use of a "push" strategy and a higher level of

¹Corresponding author. Tel.: +0048 691 464 035. E-mail address: k.olszewska@pwsz.elblag.pl

²Corresponding author. Tel. +0048 605 570 568. E-mail address: a.wasniewska@wpit.am.gdynia.pl

financing, which ultimately translates into a higher product price. For traditional products, on the other hand, the level of promotional support is relatively lower and refers primarily to price promotions, which also means lower purchase prices for consumers.

In marketing strategies that make use of a balanced approach, dairy market entities should take into account the overall concept of implementing sustainable patterns of consumption and food production - all aspects and stages of product life, from production to consumption and the use of appropriate promotion instruments. Balanced nutritional value, diet and lifestyle are issues that the entrepreneur should consider in creating their market messages.

3. Research results and discussion

Many factors affect the consumption of milk. The authors, basing on available reliable data published by Central Statistical Office, EUROSTAT, Institute of Agricultural Economics and Food Economy and Agricultural Market Agency, identified the determinants relevant to the milk market in Poland.

The data set for the analysis concerned issues related to, inter alia, purchase of milk, the volume of milk products production, the volume of consumption, the demographic situation, the price of unprocessed and processed agricultural products. The whole set of the variables identified by the authors included 46 items. However, the analysis covered five factors.

The research period adopted for the analysis is from 2010 to 2016. The years adopted for the analysis is a period of dynamic changes that took place in politics, economy and demographics in Poland. These changes were also reflected in agriculture as well as production, purchase and processing of milk.

From the set of all determinants (46 factors), only those that were characterized by a high level of variation were subject to further analysis. As a result, a list of determinants was obtained (Table 1).

Table 1

Determinants		
No	Variable	Endogenous Determinant
1.	Y	Milk consumption in litres per capita
Exogenous Determinants		
1.	X1	Average retail prices of consumer goods and services - cow's milk with a fat content of 3-3.5 %, sterilized - for PLN 1 / PLN
2.	X2	Average retail prices of consumer goods and services - Fruit yogurt - for 150g / PLN
3.	X3	Average retail prices of consumer goods and services - semi-fat curd cheese - for 1kg / PLN
4.	X4	Average retail prices of consumer goods and services - fresh butter with a fat content of approx. 82.5 % - for 200g / PLN
5.	X5	Consumption of butter in kilograms per capita

Source: author's calculations

Exogenous determinants analyzed in the period from 2010 to 2016 showed an upward trend (X1, X2, X3, X5) with the exception of the average retail prices of fresh butter goods and services with a fat content of approximately 82.5 % (Zeliaś A, Pawełek B, Wanat S, 2003). On the other hand, the endogenous variable in 2012 and 2014 recorded declines in value, comparing year-on-year data (Table 2).

¹Corresponding author. Tel.: +0048 691 464 035. E-mail address: k.olszewska@pwsz.elblag.pl

²Corresponding author. Tel. +0048 605 570 568. E-mail address: a.wasniewska@wpit.am.gdynia.pl

Table 2

Trends of exogenous determinants

No	Variable	Question	Trend line pattern	Slope
1.	X1	Average retail prices of consumer goods and services - cow's milk with a fat content of 3-3.5 %, sterilized - for PLN 1 / PLN	$y = 0.0207x + 2.7186$	positive
2.	X2	Average retail prices of consumer goods and services - fruit yogurt - for 150g / PLN	$y = 0.0204x + 1.1057$	positive
3.	X3	Average retail prices of consumer goods and services - semi-fat curd cheese - for 1kg / PLN	$y = 0.2057x + 12.066$	positive
4.	X4	Average retail prices of consumer goods and services - fresh butter with a fat content of approx. 82.5 % - for 200g / PLN	$y = -0.0146x + 4.3814$	negative
5.	X5	Consumption of butter in kilograms per capita	$y = 0.0821x + 3.9429$	positive

Source: author's calculations

Then, on the basis of the value of endogenous variable and potential exogenous variables, the correlation vector and the correlation coefficient matrix were determined. These values were then used to select variables for the model (Kowalik K., 2014). The number of possible combinations for exogenous variables was determined using the Hellwig method. Five possible combinations were obtained from five variables, which were analyzed by determining the individual information capacity for each of them (Sobczak M., 2013).

Formulae – The information capacity – The Hellwig Method

$$H_i = \frac{r_j^2}{\sum |r_{ij}|} \quad (1)$$

Where:

l – the number of the combination;

r_j – linear correlation coefficient between endogenous variable and the j -th exogenous variable

r_{ij} – linear correlation coefficient between the i -th endogenous variable and the j -th exogenous variable occurring in a given combination

The values of individual capacity of information for exogenous variables are included in Table 3.

¹Corresponding author. Tel.: +0048 691 464 035. E-mail address: k.olszewska@pwsz.elblag.pl

²Corresponding author. Tel. +0048 605 570 568. E-mail address: a.wasniewska@wpit.am.gdynia.pl

Table 3

Individual information capacities

No	Variable	Combination	Capacity	No	Variable	Combination	Capacity
1.	H1	X1	0.1137	16.	H16	X1X2X3	0.4169
2.	H2	X2	0.3189	17.	H17	X1X2X4	0.0876
3.	H3	X3	0.6749	18.	H18	X1X2X5	0.5796
4.	H4	X4	0.0374	19.	H19	X1X3X4	0.4088
5.	H5	X5	0.5373	20.	H20	X1X3X5	0.7439
6.	H6	X1X2	0.2386	21.	H21	X1X4X5	0.4083
7.	H7	X1X3	0.4488	22.	H22	X2X3X4	0.4807
8.	H8	X1X4	0.0967	23.	H23	X2X3X5	0.8363
9.	H9	X1X5	0.5970	24.	H24	X2X4X5	0.5393
10.	H10	X2X3	0.5253	25.	H25	X3X4X5	0.6923
11.	H11	X2X4	0.2676	26.	H26	X1X2X3X4	0.3908
12.	H12	X2X5	0.8112	27.	H27	X1X2X3X5	0.7341
13.	H13	X3X4	0.5772	28.	H28	X1X2X4X5	0.4873
14.	H14	X3X5	0.8803	29.	H29	X1X3X4X5	0.5909
15.	H15	X4X5	0.3312	30.	H30	X2X3X4X5	0.6702
----	-----	-----	-----	31.	H31	X1X2X3X4X5	0.5945

Source: author's calculations

From the set of all combinations, the one to be chosen should be the one for which the information capacity has the highest value. Among the analyzed exogenous variables, this combination concerns the X3X5 dependencies, occurring between the average retail prices of consumer goods and services - semi-fat curd cheese - for 1 kg/PLN and butter consumption in kilograms per capita.

Based on these variables, an econometric model was created using the classic method of least squares. As a result of the calculations, the following model was obtained:

$$\hat{Y} = 14.36x_3 + 22.02x_5 - 76.37$$

$$(\pm 4.16) \quad (\pm 8.22) \quad (\pm 51.86)$$

On the basis of the model, one can assess consumer purchasing behaviour according to the exogenous variable, which is the level of per capita milk consumption. Consumption of milk per person is primarily related to the average retail prices of goods and services of the semi-fat curd cheese and the amount of butter consumed in kilograms per person.

The fit of the model (coefficient of determinacy) reached the value of 0.88, which proves that only in 12 % percent the model does not adhere to reality and the standard deviation of residues was 4.66, which proves that empirical values of milk consumption per person differ, on average, from the theoretical values resulting from the model by 4.66 litres per person.

Conclusions

- 1) The analysis of the value of correlation coefficients showed that consumers have positive purchasing preferences regarding milk consumption in Poland, which is exemplified by the increase in milk consumption in the analyzed period. In 2010, the per capita milk consumption was 189 litres, to reach 219 litres per person in 2016.
- 2) In the Polish dairy market reality, entrepreneurs customize the product offer to the needs and expectations of the modern consumer and use more and more modern forms of sales

¹Corresponding author. Tel.: +0048 691 464 035. E-mail address: k.olszewska@pwsz.elblag.pl

²Corresponding author. Tel. +0048 605 570 568. E-mail address: a.wasniewska@wpit.am.gdynia.pl

promotion, which at the same time contributes to the consumption growth of specific dairy products.

- 3) Marketing activities undertaken by entrepreneurs operating on the milk market contributed primarily to the consumption of butter and semi-skimming curd - traditional products for which the level of promotional support is relatively lower, and thus prices are also lower. However, despite higher promotional support and marketing campaigns, the consumption of yogurt, fresh butter and sterilized cow's milk with a fat content of 3-3.5 % had no impact on milk consumption in Poland.
- 4) In the era of globalism, a healthy lifestyle and more and more heterogeneous needs of the modern consumer will play an increasingly important role and will affect the level of consumption of individual product groups. Currently available data do not include detailed breakdowns for the consumption of "healthy" products, which made the analysis impossible.

Bibliography

1. Baudrillard, J. (2006). *Spoleczenstwo konsumpcyjne, jego mity i struktury*. Sic!, Warszawa, p. 63.
2. Husak, Z. (2013). *Zagadnienie gromadzenia danych o uzytkownikach portali internetowych na potrzeby profilowania marketingowego*, w: *Wspolczesne uwarunkowania promocji i reklamy*, red. A.J. Kukula, Difin, Warszawa, p. 91.
3. Jolly, A. (2003). *OECD Economies and the World Today: Trends, Prospects, and OECD Statistics*, Kogan Page Publishers, p. 120.
4. *Konsument i konsumpcja we wspolczesnej gospodarce*, M.Janos-Kreslo, B. Mroz (red.), SGH, Warszawa 2006, s. 41.
5. Kowalik, K. (2014). *On Implementation of the Method of Capacity of Information Bearers (the Hellwig method) in spreadsheets*, in: Banek, T. and Kozlowski, E. ed.: *Probability in Action*. Politechnika Lubelska, pp. 31-40.
6. Krajewski, K. (2011). Wybrane czynniki okreslajace decyzje zakupowe nabywcow produktow mleczarskich a warunki sprzedazy. *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Poznaniu*, No 175, pp. 188-195.
7. Mroz, B. (2009). *Consumo ego sum? Rola konsumpcjonizmu we wspolczesnych spoleczenstwach*, [w:] B. Mroz (red.), *Oblicza konsumpcjonizmu*. SGH, Warszawa, p. 8.
8. *Oslo Rountable on Sustainable Production and Consumption*, 1994, <http://www.iisd.ca/consume/oslo004.html#top> Access:10.01.2018.
9. Ryszawska, B. (2013). *Zielona gospodarka – teoretyczne podstawy koncepcji i pomiar jej wdrazania w Unii Europejskiej*, Wydawnictwo Uniwersytetu Ekonomicznego we Wroclawiu, Wroclaw.
10. Slaby, T. (2006). *Konsumpcja. Eseje statystyczne*. Difin, Warszawa, p. 17.
11. Sobczyk, M. (2013). *Ekonometria*. Wydawnictwo C.H.Beck, Warszawa, pp. 17-24.
12. Stefańska, M. (2009). Postawy konsumentow wobec wybranych srodkow aktywizacji sprzedazy. *Zeszyty Naukowe Uniwersytetu Szczecinskiego* No 559, *Ekonomiczne Problemy Usług* No 42, Wydawnictwo Naukowe Uniwersytetu Szczecinskiego, Szczecin, pp. 360-368.
13. Swiatkowska, M. (2011). Postawy polskich konsumentow wobec wybranych instrumentow promocji. *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Poznaniu* No 208, pp. 266-277.
14. Sznajder, M. (2008). The Concept of Sustainable Food Chain (Case Study-The Dairy Food Chain). *J. Agribus. Rural Dev.*, No 2(8), pp. 155-163.
15. Veblen, T. (2008). *Teoria klasy prozniacej*. Muza, Warszawa, p. 65.
16. Zeliaś, A., Pawełek, B., Wanat, S. (2003). *Prognozowanie ekonomiczne*. Wydawnictwo Naukowe PWN, Warszawa, pp. 70-75.

¹Corresponding author. Tel.: +0048 691 464 035. E-mail address: k.olszewska@pwsz.elblag.pl

²Corresponding author. Tel. +0048 605 570 568. E-mail address: a.wasniewska@wpit.am.gdynia.pl

EFFECT OF VISUAL CUES ON STATIC ADVERTISEMENT VIEWING PATTERNS

Lina Pileliene¹, PhD; Viktorija Grigaliunaite²
^{1,2}Vytautas Magnus University

Abstract. In conditions of hard competition in consumer products markets, advertising becomes one of the main measures helping business companies to encourage people to choose their products. In business as well as in scientific societies, the elements enhancing advertising effectiveness becomes one of the most discussed questions. Accordingly, this article deals with this topic by solving a scientific problem – is there and what is the effect of visual cues on static advertisement viewing patterns? The aim of the research is to determine the effect of visual cues on static advertisement viewing patterns. The neuromarketing research method – eye-tracking – is performed to determine the most effective visual cues in static advertising; managerial implications regarding the usage of visual cues are provided based on the research results.

Key words: advertising, advertising effectiveness, eye tracking, visual cues.

JEL code: M31, M37

Introduction

Advertising is a common practice used by companies to inform, persuade and remind consumers about the products and services. If well performed, it can visibly elevate sales and revenues. However, being used massively, many advertisements are facing ignorance or remain unnoticed by potential consumers. Advertising research is keeping its popularity for many years. According to Eisend M. and Tarrahi F. (2016), practitioners and scholars are concerned about whether and to what degree advertising influences consumers, what consumer reactions advertising can evoke, and how these reactions are related. Patrick V. M. and Hagtvedt H. (2011) emphasize that the effectiveness of an advertisement is a function of what is said and how it is said; therefore, several creative elements come together to form a successful advertisement. The determination of latter elements and their combinations becomes an important task for advertisers achieving to break through the information clutter.

A particular composition of elements in static advertisement is called advertising layout. According to Chamblee R. and Sandler D. M. (1992), layouts represent the culmination of all the components that make up print (in our case, *static*) advertisements. Evidently, some layouts are superior compared with others (Pileliene L. and Grigaliunaite V., 2016a). Previous research (Pileliene L. and Grigaliunaite V., 2016b) revealed that more complex advertisements received more consumers' visual attention than less complex ones; however, consumers' visual attention to a brand (or logotype) presented in an advertisement was decreasing when advertising complexity increased. Despite the valid research results obtained in standard conditions, the existence of extraordinary ways to elevate advertising effectiveness in terms of extending the brand viewing time cannot be denied. As one of such ways, visual cues can be named. The problem solved by the research is stated by the question: is there and what is the effect of visual cues on static advertisement viewing patterns? This article aims to determine the effect of visual cues on static advertisement viewing patterns.

Many methods for assessing advertising effectiveness were elaborated, validated and improved. Pozharliev R., Verbeke W. I. and Bagozzi R. P. (2017) emphasize that traditional methods for predicting the success of advertising are based on self-reports and largely depend on the willingness and ability of consumers to describe their levels of attention, emotions, preferences, or future buying behaviour in relation to the marketing campaign to which they have been exposed.

Therefore, the use of neuroscientific advertising research is emerging. To get more precise results, eye-tracking experiment was provided.

Research results and discussion

1. Methodology of the research

The analysis and synthesis of scientific literature reveal that directional visual cues are powerful means for orienting consumer's visual attention to the most important parts of the advertisement's layout (e.g. brand presented in the advertisement) (Hutton, S. B. and Nolte, S., 2011). Hence, directional visual cues in the advertisements are visual elements that direct consumer's visual attention toward the core elements of the message that organization wants consumers to see. One type that has a special status as an attentional cue is deictic gaze (Shepherd, V., 2010) – when someone in the advertisement is looking at something (e.g. brand or product), consumer brain acts reflexively and they start looking at that object as well. The other type of visual cues is pointing gestures (when someone in the advertisement is pointing with the hand or leg or somehow else at something) (Birmingham, E., Bischof, W. F. and Kingstone, A., 2009). This type of visual cues may also include pointing arrows, head position or body position. Deictic gaze and pointing arrows are widely discussed in the scientific literature (Birmingham, E., Bischof, W. F. and Kingstone, A., 2009; Hutton, S. B. and Nolte, S., 2011). Nevertheless, research regarding the type of visual cue when someone is holding and / or using something is scarce. Consequently, four categories of the advertisements with different types of visual cues are generated:

- Advertisements without cues (control);
- Advertisements with deictic gaze to a brand / product;
- Advertisements with pointing gestures / arrows to a brand / product;
- Advertisements where spokesperson is holding / using the product with the brand presented on it.

Based on the content analysis of real advertisements the grid of the experiment's advertisements was created with the description of three advertisements for each category (Table 1).

Table 1

The grid of experiment's advertisements

Criteria	Number of the advertisement		
	1	2	3
Advertisements without cues (control)	Spokesperson in the right of the advertisements' layout and the product with the brand on it in the left of the advertisements' layout	Spokespersons in the left of the advertisements' layout and the product with the brand on it in the right of the advertisements' layout	Spokes-characters in the middle of the advertisements' layout, product with the brand on it in the bottom of advertisements' layout
Advertisements with deictic gaze	Spokesperson looking at the product with the brand on it	Spokesperson looking at the product with the brand on it	Spokesperson looking at the product with the brand on it
Advertisements with pointing gestures	Spokesperson pointing with hand to the product with the brand on it	Arrow pointing from the spokes-character to the product with the brand on it	Spokesperson pointing with leg to the product with the brand on it
Advertisements with holding/using product	Spokesperson holding in the hand and using (drinking) the product with the brand on it	Spokesperson holding in the hand and using (drinking) the product with the brand on it	Spokesperson holding in the hand the product with the brand on it

Source: author's elaboration

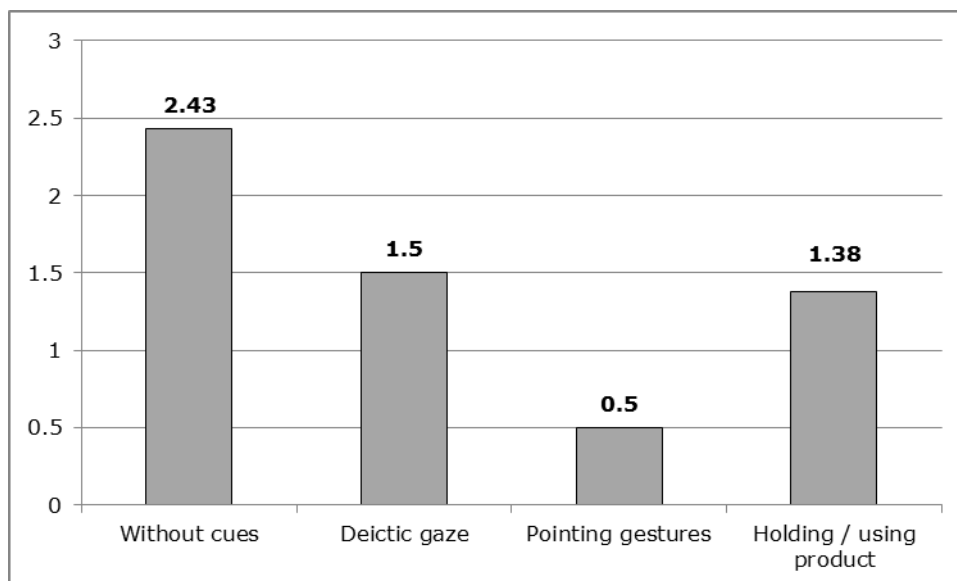
According to the latter grid, 12 static advertisements were created by the professionals (4 categories of advertisements, each category contained three advertisements in order to eliminate the possible biases) and approved by marketing experts. Hence, advertisements without cues (as a control) contain spokespersons or spokes-characters and the products with the brands on them without any directional cues. Advertisements in the category of deictic gaze visual cue contained spokespersons looking at the products with the brands on them. Advertisements with pointing gestures as visual cues contained spokespersons pointing with the hand or leg to the product with the brand on it and arrow pointing from the spokes-character to the product with the brand on it. Finally, advertisements where spokesperson was holding / using the product with the brand presented on it contained advertisements with spokesperson holding and / or using the product with the brand presented on it. In all of the advertisements, the advertised product was mineral water and the brands used on the products were created (not existing) in order to eliminate the influence of current attitudes towards existing brands.

All the advertisements were presented in the computer screen, one advertisement at once and the participants looked at the advertisements at their own pace, controlling the switch of the advertisements with the computer mouse. Between the advertisements the interstimulus of black screen appeared for 2 seconds in order to eliminate the influence of the previously seen advertisement's gaze trajectory. All the participants were told to just look at the advertisements as they would in real environment (participants were not told that the viewing patterns were analysed in order to get as reliable results as possible). Total of 12 participants (8 women) participated in the experiment that was held in January 2018. All of the participants were at the age group of 20-30 years with normal to normal-to-corrected vision.

Tobii Pro X2-30 screen-based eye tracker capturing gaze data at 30 Hz with the accuracy of 0.4° was applied for the experiment. Each participant was calibrated before the experiment. For the analysis of eye tracing results, Tobii Studio v.3.2.3 software was used. Areas of interest for advertisements and brands presented on the products in the advertisements were created and time to first fixation to the brand as well as viewing time and fixation count to the advertisements and brands were calculated. IBM SPSS Statistics v.20 software package was applied for the statistical analysis of the results obtained from the Tobii Studio v.3.2.3 software.

2. Research results

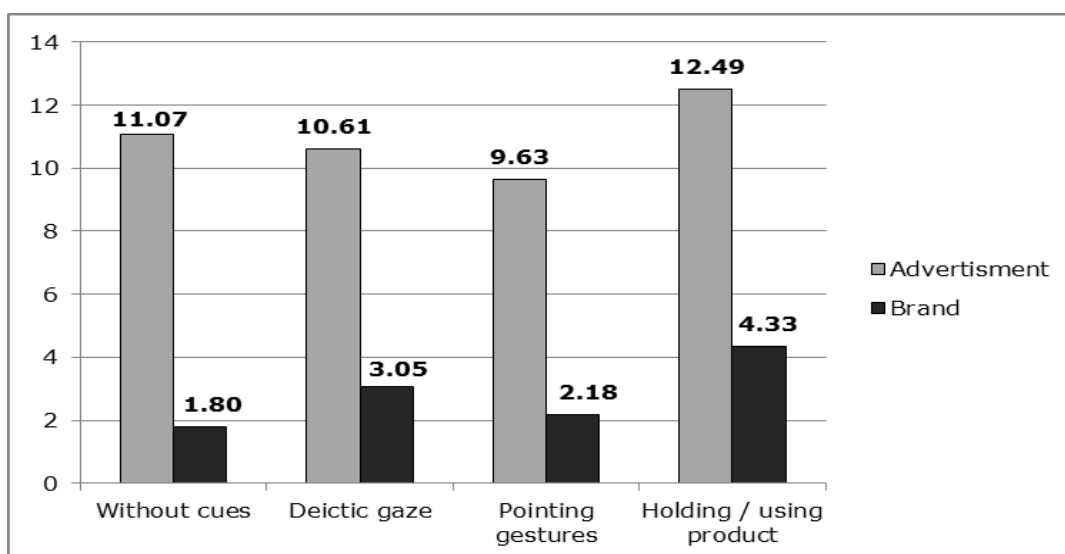
The analysis of the research results starts with the evaluation of time to first fixation on a brand in the advertisement (in seconds). This metric measure how long it takes before a participant fixates on the specified group of the areas of interest for the first time. In this case the specified group of the areas of interest is the brands presented in the advertisements of the defined category (advertisements without cues; advertisements with deictic gaze, advertisements with pointing gestures, and advertisements with holding / using product). Latter results are provided in Figure 1 with the average participants' time to first fixation to the brand. As it can be seen, in the advertisements where visual cues are the pointing gestures (arrow pointing or spokesperson pointing with hand / leg), the brands are seen the first. The category of the advertisements where the brands are seen later is holding / using product. Slightly later brands are first seen in the advertisements with deictic gaze. Finally, it takes the longest time to see the brands presented in the advertisements without visual cues. Hence, it can be stated that visual cues help to see the core of the message faster when compared to the advertisements without visual cues.



Source: author's elaboration

Fig. 1. Time to first fixation on a brand in the advertisement (in seconds)

The average of the participants' total fixation duration (in seconds) on the advertisements and brands showed in the advertisements is presented in Figure 2 below. As it can be seen, the advertisements where the spokesperson is holding / using the product attract the most participants' visual attention. Moreover, the brands presented in these advertisements also attract the most visual attention.



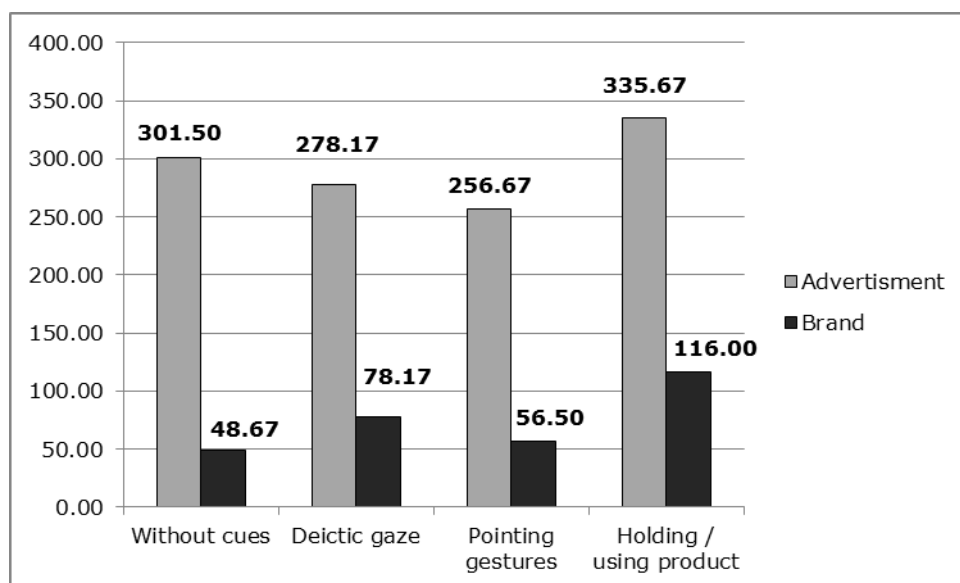
Source: author's elaboration

Fig. 2. Total fixation duration (in seconds) on the advertisements and brands presented in the advertisements

The advertisements without visual cues are in the second place regarding attracted visual attention to the advertisements. Nevertheless, brands presented in these advertisements attract least participants' visual attention. It can be stated, that without visual cues the possibility that consumers will notice the brand presented in the advertisement decreases. The advertisements with deictic gaze to the product and brand presented on the product are in the third place regarding attracted visual attention to the advertisements, but in the second place regarding attracted visual attention to the brands presented in the advertisements. Finally, advertisements

with pointing gestures to the product and brand presented on the product attract least visual attention, but are in the third place regarding attracted visual attention to the brands presented in the advertisements. Consequently, it could be stated that visual cues do not necessarily make advertisement itself more visually interesting as advertisements without visual cues still attract attention, but they definitely enhance the possibility that brand presented in the advertisement will be seen and taken into consideration as brands presented in the advertisements with any visual cues attract more visual attention than brands presented in the advertisements without visual cues.

Latter results are substantiated by the participants' average fixation count (number of fixations in times) within the advertisements and brands presented in the advertisements that can be seen in Figure 3. The advertisements where the spokesperson is holding / using the product had the most fixations on the advertisement as well as on the brand. The advertisements with deictic gaze to the brand are in the second place regarding fixation count to the brand and in the third place regarding fixation count to the advertisement. Advertisements with pointing gestures to the brand are in the third place regarding fixation count to the brand and in the fourth place regarding fixation count to the advertisement. Finally, advertisements without visual cues are in the second place regarding fixation count to the advertisement, but in the last place regarding fixation count to the brand.

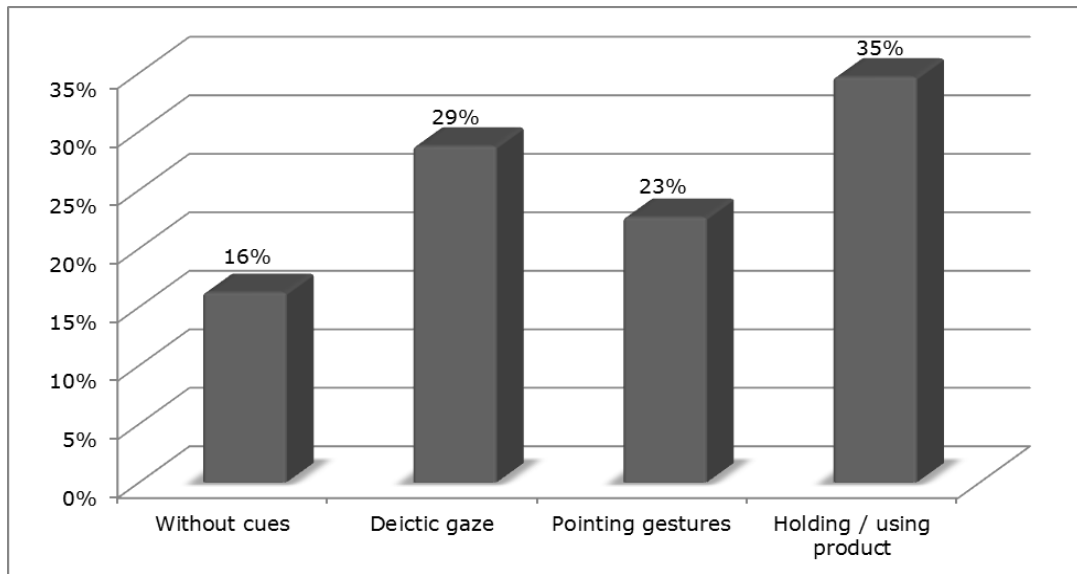


Source: author's elaboration

Fig. 3. Fixation count (times) on the advertisements and brands presented in the advertisements

Consequently, when measuring brand viewing time as a percent from advertisement's viewing time (Figure 4), it can be seen that visual cues of spokesperson holding / using the product and deictic gaze attract most visual attention to the brand when watching at the advertisement, respectively 35 percent and 29 percent of advertisement's viewing time. When pointing gestures to the brand are used in the advertisement, brand viewing time is 23 percent from the advertisement's viewing time. Finally, when there are no visual cues in the advertisement, brand viewing time is 16 percent from the advertisement's viewing time. Bearing in mind that if advertisements' viewing time is a few seconds, then there is a possibility that brand presented in

the advertisement without visual cues cannot pass the filter of attention as its viewing time is too short.



Source: author's elaboration

Fig. 4. Percent of brand viewing time from the advertisement's viewing time

As the data of brand viewing time (total fixation duration) violated the assumptions necessary to run the ANOVA with repeated measures (data has marked deviations from normality and violated Sphericity), Friedman test is applied to test for differences in brand viewing time with different visual cues presented in the advertisements. As it can be seen from Table 2, there is a statistically significant difference in brand viewing time depending on which type of visual cue was applied in the advertisement, $\chi^2(3) = 15.857$, $p = 0.001$.

Table 2

Friedman Test Statistics

Variables for Total fixation duration	Mean Rank	Chi-Square	df	p-value
Brand in the advertisements without cues	1.67	15.857	3	0.001
Brand in the advertisements with deictic gaze	2.83			
Brand in the advertisements with pointing gestures	2.00			
Brand in the advertisements with holding/using product	3.50			

Source: author's calculations

To examine where the differences actually occur, Wilcoxon signed-rank test with the use of Bonferroni adjustment is applied as a Post Hoc test. As there are 6 tests, new significance level is 0.008 (standard significance level of 0.05 divided by the number of tests). The results of Wilcoxon signed-rank test are provided in Table 3 below. As it can be seen from the results, brand presented in the advertisement with visual cue of deictic gaze attracts statistically significantly more visual attention than brand presented in the advertisement without visual cues ($Z = -2.812$, $p = 0.005$). Moreover, brand presented in the advertisement with visual cue of spokesperson holding / using the product attracts statistically significantly more visual attention than brand presented in the advertisement without visual cues ($Z = -2.831$, $p = 0.005$). Nevertheless, there is no significant differences between visual attention to the brand presented in the advertisement with pointing gestures and brand presented in the advertisement without visual cues ($Z = -0.971$, $p = 0.331$); between visual attention to the brand presented in the advertisement with pointing gestures and

brand presented in the advertisement with deictic gaze ($Z = -2.096$, $p = 0.036$); between visual attention to the brand presented in the advertisement with holding / using the product and brand presented in the advertisement with deictic gaze ($Z = -2.516$, $p = 0.012$); and between visual attention to the brand presented in the advertisement with holding / using the product and brand presented in the advertisement with pointing gestures ($Z = -2.516$, $p = 0.012$). Hence, it could be stated that brand viewing time when applying visual cues of deictic gaze or spokesperson holding / using the product is statistically significantly higher than brand viewing time in the advertisement without visual cues.

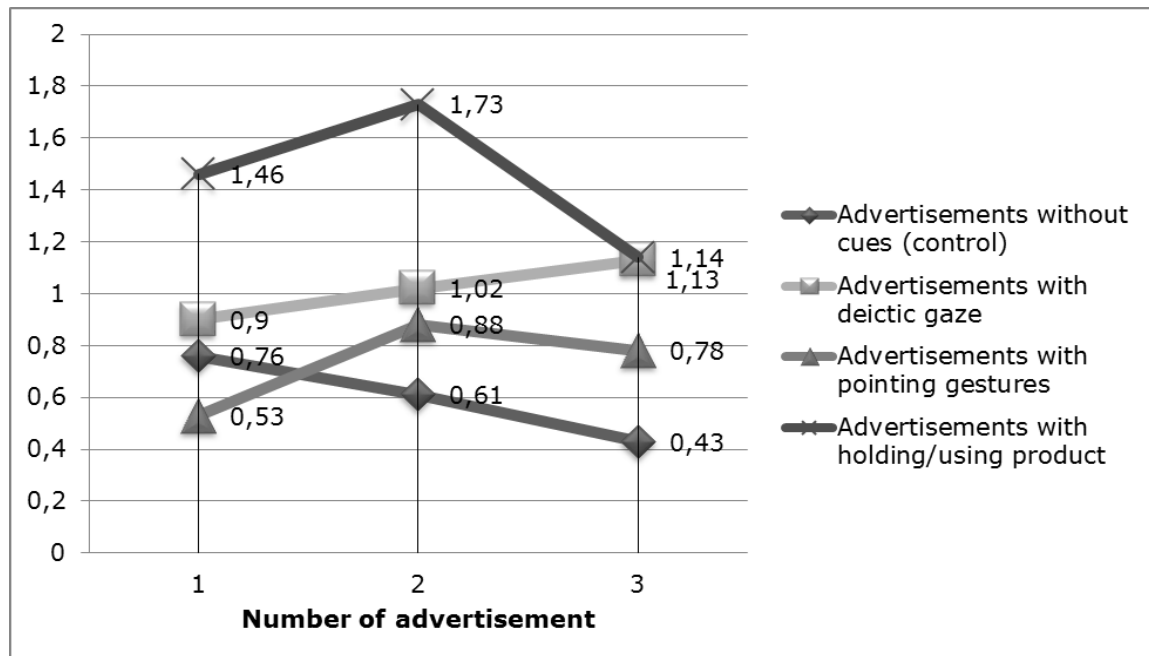
Table 3

Wilcoxon Signed Ranks Test Statistics

Variables for Total fixation duration	Z	p-value
Brand in the advertisements with deictic gaze - Brand in the advertisements without cues	-2.812	0.005
Brand in the advertisements with pointing gestures - Brand in the advertisements without cues	-0.971	0.331
Brand in the advertisements with holding/using product - Brand in the advertisements without cues	-2.831	0.005
Brand in the advertisements with pointing gestures - Brand in the advertisements with deictic gaze	-2.096	0.036
Brand in the advertisements with holding/using product - Brand in the advertisements with deictic gaze	-2.516	0.012
Brand in the advertisements with holding/using product - Brand in the advertisements with pointing gestures	-2.516	0.012

Source: author's calculations

This conclusion is substantiated by the analysis of visual attention to the brand regarding all of the separate experiment's advertisements (see Figure 5).



Source: author's elaboration

Fig. 5. Total fixation duration (in seconds) on the brands for different advertisements

As it can be seen, the first advertisement attracted most visual attention to the brand when visual cue of spokesperson holding / using the product or deictic gaze was applied. The same situation is with the second advertisement. Regarding the third advertisements, the application of

visual cue of spokesperson holding / using the product and deictic gaze attracted nearly the same visual attention to the brand.

In the advertisements without visual cues brand attracted the least visual attention in 2 out of 3 separate advertisements. As it could be seen, regarding the first advertisement where spokesperson was pointing with hand to the product with the brand on it, brand attracted the least visual attention. Nevertheless, in the case of the second and third advertisements, where arrow was pointing from the spokes-character to the product with the brand on it and spokesperson was pointing with leg to the product with the brand on it, brands in the advertisements without visual cues attracted less visual attention when compared to the advertisements with pointing gestures.

Conclusions, proposals, recommendations

- 1) The analysis of the research results allows concluding that the core message of the advertisement – the brand – requires additional instruments to make it visible and perceived by consumers in order to enhance brand value. The directional visual cues can serve as an effective instrument to direct consumer's attention to the most important areas (in most cases – the brand) of an advertisement.
- 2) The analysis of the research results reveal that the highest probability to attract most consumer attention to the brand is to apply visual cue of spokesperson holding / using the product. However, if there are any constraints for application of this type of cue, deictic gaze can be effective as well.
- 3) The results of the research show that most ineffective (in terms of capturing consumer attention to a brand) are the advertisements where no visual cues are provided.
- 4) Using pointing gestures as a visual cue is better than leaving an advertisement without a cue; however, the effect of this technique is very low.

Bibliography

17. Birmingham, E., Bischof, W. F. and Kingstone, A. (2009). Get real! Resolving the Debate About Equivalent Social Stimuli. *Visual Cognition*, Volume 17, No. 6/7, pp. 904-924.
18. Chamblee, R., Sandler, D. M. (1992). Business-to-Business Advertising: Which Layout Style Works Best?. *Journal Of Advertising Research*, Volume 32, No.6, pp. 39-46.
19. Eisend, M., Tarrahi, F. (2016). The Effectiveness of Advertising: A Meta-Meta-Analysis of Advertising Inputs and Outcomes. *Journal of Advertising*, Volume 45, No. 4, pp. 519-531.
doi:10.1080/00913367.2016.1185981
20. Hutton, S. B., Nolte, S. (2011). The Effect of Gaze Cues on Attention to Print Advertisements. *Applied Cognitive Psychology*, Volume 25, pp. 887-892.
21. Patrick, V. M., Hagtvedt, H. (2011). Advertising with Art: Creative Visuals, Editor(s): Mark A. Runco, Steven R. Pritzker, Encyclopedia of Creativity (Second Edition), Academic Press, pp. 18-23. Available from: <https://doi.org/10.1016/B978-0-12-375038-9.00003-0>.
22. Pileliene, L., Grigaliunaite, V. (2016). Effect of Visual Advertising Complexity on Consumers' Attention. *International Journal of Management, Accounting and Economics*, Volume 3, No. 8, pp. 489-501.
23. Pileliene, L., Grigaliunaite, V. (2016) Influence of Print Advertising Layout Complexity on Visual Attention. *Eurasian business review*, Volume 6, Issue 2, pp. 237-251.
24. Pozharliev, R., Verbeke, W.I., Bagozzi, R.P. (2017). Social Consumer Neuroscience: Neurophysiological Measures of Advertising Effectiveness in a Social Context. *Journal of Advertising*, Volume 46, No. 3, pp. 351-362. Available from: 10.1080/00913367.2017.1343162.
25. Shepherd, V. (2010). Following gaze: gaze-following behavior as a window into social cognition. *Frontiers in Integrative Neuroscience*, Volume 4, Article 5, pp. 1-13.

EXPENSES OF FARM HOUSEHOLDS ON CONSUMER GOODS AND SERVICES IN 2006-2016 IN POLAND

Agnieszka Siedlecka¹, PhD; Izabela Wielewska², PhD

¹Faculty of Economics and Technical Sciences, Pope John Paul II State School of Higher Education in Biala Podlaska, Poland; ²Faculty of Agriculture and Biotechnology, UTP University of Science and Technology in Bydgoszcz, Poland

Abstract. The level and structure of household expenses is determined by the amount of income earned. In the analysed period, the results of the household budget survey indicate an increase in both the average monthly disposable income per one person of the household as well as the average monthly expenditure per person on consumer goods and services.

The aim of this paper is to demonstrate how the shift in the level of farm household incomes in relation to households in general influences the change in expenditures on consumer goods and services.

For the purpose of the study, secondary data obtained from the reports of the Central Statistical Office were used.

Key words: household, expenses, quality of life.

JEL code: D1, Q12

Introduction

The concept of household is defined in a variety of ways. The following groups of definitions can be extracted (Siedlecka, 2015): referring to the family (Piotrowski, 1970, Szczepanski, 1970) of a relevant nature (Hodoly 1971, Syrek, 1980) and of a mixed nature (Kedzior, 1992, Gutkowska, 1997).

The vast majority of definitions of the term household point out to the fact of collecting income and spending it. The level of earned income is the factor that shapes the satisfaction of needs to the greatest extent, and thus affects the quality of life of all household members. The socio-economic role of household income stems from the following premises: they constitute a measurable factor determining demand and consumption; affect the behaviour of consumption entities earlier than other economic factors; indirectly affect changes of other variables; they are a guarantee of development and social security of economic units (Gasinska, 2016). The main source of household income is from hired work; however, the revenues can also come from agricultural activity, rental or lease of owned property, random winnings, inheritances and donations. There are also non-revenue sources such as benefits. Proper management of the household's finances is associated not only with the accumulation of resources but also with a skilful disposition related to the repayment of previously contracted obligations, planned purchases of consumer goods and services, as well as investment of savings.

This paper attempts to indicate how the shift in the level of farm household incomes in relation to households in general influences the change in expenditures on consumer goods and services. A hypothesis was formulated that farm households have a lower share of expenditure on foodstuffs compared to households in general.

To achieve the assumed goal and verify the hypothesis, analyses were carried out on secondary data obtained from the reports of the Central Statistical Office which were conducted as part of the household budget survey. For the purpose of the study, the selection of households was performed using a representative method which allowed for the generalisation of results. The data from 2007-2016 were analysed, among others, for farm households. According to the Central Statistical Office Methodology, the farm households are defined as "households, of which the exclusive or main (predominating) source of income comes from the private farm-use in agriculture; an additional source of income for these households may be a retirement pension, disability benefits or other

¹Corresponding author. Tel.: + 48 667 935 314; fax: + 48 83 344 99 50. E-mail address: a.siedlecka@wp.pl

²Corresponding author. Tel.: +48 52340804. E-mail address: izabel2000@wp.pl

non-revenue sources, hired work, self-employment or a freelance labour; this means that the income obtained from additional sources is lower than income obtained from the private farm-use in agriculture" (Household budgets in 2016, p. 15). The following average categories were taken into account: monthly inflows per capita in a household in the form of disposable income, and average monthly outflows per capita in a household in the form of expenses.

Research results and discussion

The number of households surveyed as part of the budget survey in respective years was at the level of 37.000 entities. The analysed households differed, among others, with respect to the place of residence, the dominant source of income, the number of people in line with the main source of income. One of the features characterising the household was the average number of people per household. In all types of households, a declining trend in the size of households can be observed. Over a ten-year study period, a significant decrease in the average number of people on farms can be noticed.

Farm households are the entities in case of which this decrease is the largest. In 2007, the average number of people per household was 4.33, while in the households of employed persons it was lower and amounted to 3.44. In 2016, the difference was already lower: the average number of people in the farm households was 3.84, whereas the number of people in the households of employed persons was 3.12. In the analysed period there was also a reduction in the average number of people in the households of retirees and pensioners, this value in 2007 was 2.13 and in 2016 it amounted to 1.89. These variations are to a large extent the result of socio-economic changes taking place in demographic processes. Negative natural population growth, decreasing fertility of women are, among others, the factors conditioning such a distribution of the discussed feature.

The level of disposable income earned on average per capita per month in a household over a ten-year study period developed in a differentiated manner. With regard to the total number of households over the analysed period, an annual increase in the average monthly income per capita in a household could be observed. The scale of year-to-year changes varied. The highest increase took place in 2008 compared to 2007 - 12.6 per cent. The lowest increase in 2013 as compared to 2012 amounted to 1.6 per cent. With respect to farm households, the scale of changes was much more diversified - Table 1.

¹Corresponding author. Tel.: + 48 667 935 314; fax: + 48 83 344 99 50. E-mail address: a.siedlecka@wp.pl

²Corresponding author. Tel.: +48 52340804. E-mail address: izabel2000@wp.pl

Table 1

Changes in the level of the average monthly income per capita in a farm household in 2007-2016

Specification	Years									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Available income		4.8	-0.4	15.9	-4.0	10.9	5.9	-9.1	-0.4	10.0
of which disposable income		4.4	0.0	15.5	-3.2	10.5	6.9	-9.7	-0.3	11.0
of which:										
income from hired work		13.7	13.3	0.2	6.7	15.7	-4.6	14.7	2.8	5.2
income from self-employment		34.2	7.7	-23.1	-1.3	-3.5	38.2	-14.3	23.4	-11.9
income from private farm in agriculture		3.0	-2.6	21.8	-7.5	11.5	7.6	-14.8	-1.7	5.1
income from social security benefits		7.2	3.0	2.1	13.8	5.6	6.6	-3.7	2.7	2.3

Source: authors' study based on the data obtained from the Central Statistical Office – Household Budgets Surveys in 2007-2016

The accession of Poland to the EU had a significant impact on the income of the rural population, including the income of farm households. It was possible thanks to a greater availability of European Union funds (Utzig, 2016). On the basis of the examined period, with regard to the farm households, both increases in the average monthly income per capita as well as significant decreases occurred. Especially in 2014 compared to 2013 - a decrease of over 9 per cent was noted. Farm households are entities in case of which it is difficult to talk about a stable income situation. Both the level of income from hired labour as well as income from social security benefits is varied. Changes occurring in the income level have a direct impact on the level and structure of consumption. It can be concluded that the basic needs are satisfied in the first place, while the needs of a higher order are satisfied to a greater extent later. This is in line with Engel's law, which says that an increase in income reduces the percentage share of food expenditure in total household consumption expenditure, while the percentage share of spending on durable goods grows (Marciniak, 2004).

An analysis of the linear econometric trend model for household expenses in the scope of expenditure on consumer goods and services allowed to determine the impact of changes in disposable income per capita in a household on the level of expenditures. The analysis was made with respect to changes in income and expenditure in the years 2007-2016.

The estimated function of the model has taken the following form:

$$Y_t = \beta_0 + \beta_1 X_t + \epsilon_t \quad (t=1,2,3,\dots, 10),$$

where:

Y_t – average monthly expenses per capita in a household,

β_0, β_1 – structural parameters,

ϵ_t – random component.

Estimation of the above function of expenses was carried out in total for the whole population as well as for individual groups of households. The results of the estimation of the household expenses regression function are presented in Table 2.

¹Corresponding author. Tel.: + 48 667 935 314; fax: + 48 83 344 99 50. E-mail address: a.siedlecka@wp.pl

²Corresponding author. Tel.: +48 52340804. E-mail address: izabel2000@wp.pl

Table 2.

Results of the estimation of the expenses regression function for individual groups of households

Variable	Parameter estimation	Student's T-Test	Significance (p)	Shapiro-Wilk Test	R ²
Total					
Constant	290.439	7.934	0.000	0.983; p=0.979	R ² =0.98
Variable (income)	0.585	19.790	0.000	0.939; p=0.0542	
Of farmers					
Constant	244.588	2.931	0.019	0.896; p=0.200	R ² =0.821
Variable (income)	0.497	6.059	0.000	0.926; p=0.413	
Of employees					
Constant	281.674	8.580	0.000	0.980; p=0.967	R ² =0.984
Variable (income)	0.578	21.933	0.000	0.936; p=0.508	
Self-employed					
Constant	659.257	8.376	0.000	0.893; p=0.184	R ² =0.874
Variable (income)	0.382	7.433	0.000	0.984; p=0.985	
Of retirees and pensioners					
Constant	265.071	7.224	0.000	0.954; p=0.718	R ² =0.984
Variable (income)	0.650	22.237	0.000	0.977; p=0.949	

Source: authors' study based on the data obtained from the Central Statistical Office – Household Budgets Surveys in 2007-20016

Estimation of β_1 parameter indicates that an increase in the total disposable income of households by PLN 1 per person will result in an increase in spending on consumer goods and services in total by PLN 0.585 per person on average. Regression function explains the development of total expenditure in 98 per cent ($R^2 = 0.98$). A high coefficient of determination (R^2) indicates a high model fit. This fact is also confirmed by the coefficient of variation (V) at the level of 9.11 per cent constant and 13.37 per cent to the variable. The normality test of the distribution carried out with the Shapiro-Wilk Test points to a normal distribution at the significance level of 0.05 - for all groups of households (Table 1).

With regard to households where the main source of income comes from a private farm, the β_1 parameter indicates that the increase in disposable income per capita per farm by PLN 1 will result in an increase in expenditure on consumer goods and services on farm households by PLN 0.497 per person on average. The change was lower only with respect to households gaining income from self-employment. The parameter β_1 for this group of entities shows that the increase in disposable income per person per farm by PLN 1 will increase the expenditure on consumer goods and services on farm households by PLN 0.382 per person on average. Definitely the largest changes occur in households of retirees and pensioners. Change in disposable income by PLN 1 increases the expenditure on consumer goods and services in these households by PLN 0.650.

Expenses on consumer goods and services, which were incurred over a ten-year study period, accounted for about 95 per cent of household expenditures in general. With regard to farm households, in the years 2009, 2011, 2013. 2014-2016, these expenses amounted to 96 per cent. The last three years have noted a successive increase amounting to 96.5 per cent in 2016. When analysing particular categories of expenses, it should be noted that the highest share of

¹Corresponding author. Tel.: + 48 667 935 314; fax: + 48 83 344 99 50. E-mail address: a.siedlecka@wp.pl

²Corresponding author. Tel.: +48 52340804. E-mail address: izabel2000@wp.pl

expenditure is definitely in the category of food and non-alcoholic beverages. A similar situation takes place in other EU countries, i.e., Latvia, where food expenditure is a key element in the household expenditure budget (Upite I. et al., 2014). The general structure of households' expenditure in Central and Eastern European Countries (the Czech Republic, Lithuania, Latvia, Poland and Slovakia) indicates a lower standard of living compared to EU-15 countries. These countries strive to bridge the differences in the level of consumption structure that takes place over the years (Mikula, 2017).

Over the years, their share in the expenditure of consumer goods and services has changed slightly, but these were minor changes both in terms of households in general, and in terms of farm households.

It should be noted that in the case of farm households, food and non-alcoholic beverages represent a much larger share of expenditures as compared to the expenditures of households in general. Such a high share is related to the fact that the average monthly disposable income per capita in a household in this group of entities is the lowest. In 2007, it amounted to PLN 846.76 in farm households, and was even lower than the income in households of pensioners (PLN 937.63). The situation has not changed over the ten-year study period. The level of income in farm households was lower compared to other groups of households. In respective years, this difference ranged from 9 to 22 per cent compared to the income of all households.

The second category of expenses, i.e., in terms of the amount of expenditures, relates to the use of housing and energy carriers. During the analysed period, these expenses constituted from 18.4 per cent of household expenditures on consumer goods and services in 2007 to 20.8 per cent in 2013 (the highest share). In the case of farm households, this figure was lower and amounted to 14.9 per cent in 2007 and 18. per cent in 2013 (the highest share). This may be related to the fact that farms are situated in rural areas, where the vast majority of inhabitants live in their own homes, which is connected with the lack of expenses incurred on, e.g., rent.

Another aspect that should not be underestimated is the shift in expenditure on particular groups of expenses stemming from the change in the level of disposable income.

The results of the estimation of the expenditure model indicated that from each additional PLN 100 earned per capita, the amount of PLN 58.50 per person in households in general, and the amount of PLN 49.70 per person in farm households will be used for consumption of goods and services. Amongst particular product groups, food and non-alcoholic beverages are definitely dominant. An increase in income by PLN 100 will increase expenses on food and non-alcoholic beverages by PLN 18.90 by person in households in general, and by PLN 10 per person in the farm households.

Health expenses constitute another category of farm household expenditures in case of consumer goods and services. An increase in income by PLN 100 will affect expenditure increase by PLN 6.30 and by PLN 3.80 per capita in households in general and in farm households respectively.

In 2004-2015, the incomes of the rural population increased in nominal terms by 101.5 per cent. Despite the fact that the increase is more than 15 per cent higher in comparison to the average inhabitant of the city, income disparity between rural residents is significant. As a result, it affects the structure of spending on consumer goods and services. On average, farm households spend less on services in the field of education, health and tourism compared to other groups of households.

¹Corresponding author. Tel.: + 48 667 935 314; fax: + 48 83 344 99 50. E-mail address: a.siedlecka@wp.pl

²Corresponding author. Tel.: +48 52340804. E-mail address: izabel2000@wp.pl

Table 3

Results of the estimation of the expenditure model for selected assortment groups for households in 2007-2016

Assortment group	Households in general		Farm households	
	Model	Theoretical change in the level of expenses while increasing income by PLN 100	Model	Theoretical change in the level of expenses while increasing income by PLN 100
Food and non-alcoholic beverages	$Y_t = 57.839 + 0.189t$ $R^2 = 0.753$ $p = 0.001$	PLN 18.90	$Y_t = 139.305 + 0.100t$ $R^2 = 0.787$ $p = 0.000$	PLN 10.00
Clothing and footwear	$Y_t = 6.890 + 0.046t$ $R^2 = 0.779$ $p = 0.001$	PLN 4.60	$Y_t = 18.396 + 0.023t$ $R^2 = 0.452$ $p = 0.033$	PLN 2.30
Furnishing, household equipment and routine	$Y_t = 21.351 + 0.029t$ $R^2 = 0.685$ $p = 0.003$	PLN 2.90	$Y_t = 26.969 + 0.013t$ $R^2 = 0.475$ $p = 0.027$	PLN 1.30
Health	$Y_t = -12.364 + 0.063t$ $R^2 = 0.948$ $p = 0.000$	PLN 6.30	$Y_t = -8.424 + 0.038t$ $R^2 = 0.739$ $p = 0.001$	PLN 3.80
Transport	$Y_t = 24.683 + 0.070^*$		$Y_t = 18.213 + 0.061t$ $R^2 = 0.615$ $p = 0.007$	PLN 6.10
Communication	$Y_t = -4.194 + 0.051^*$		$Y_t = 5.589 + 0.029t$ $R^2 = 0.753$ $p = 0.001$	PLN 2.90

*- Shapiro-Wilk Test demonstrated that the distribution of the variable is not a normal distribution

** - significance level $p > 0.05$

Source: author's study based on the data obtained from the Central Statistical Office – Household Budgets Surveys in 2007-20016

Conclusion

- 1) The level of average monthly disposable income per one person in a household has a significant impact on the average monthly level of expenditure on consumer goods and services. This varies in particular types of households. In case of farm households, the category generating the highest expenditure is the assortment group of food and non-alcoholic beverages.
- 2) An increase in the average monthly disposable income per person influences the increase in expenditures in particular assortment groups. However, the highest increase is in the category of food and non-alcoholic beverages.
- 3) The second assortment group in terms of the increase in the average monthly level of expenditure in farm households is the transport category (including both expenses related to own means of transport and their operation as well as payments for journeys and transportation costs).
- 4) The structure of spending on consumer goods and services in Poland is similar to other Central and Eastern European Countries.
- 5) It is advisable to continue to observe the changes in the structure of income and expenditure of farm households in order to make an attempt to determine their level of living.

Bibliography

1. Gasinska, M. (2016). Dochody gospodarstw domowych w Polsce – wybrane obiektywne i subiektywne ujęcia i dane (Household incomes in Poland - selected objective and subjective approaches and data), *ZNUV*, 50(5), p. 101.
2. Gutkowska, K. (1997). *Rodzinne gospodarstwa domowe na wsi w warunkach gospodarki rynkowej (Family households in the countryside under market economy conditions)*. Wydawnictwo SGGW, Warszawa, pp. 19-20.
3. Hodoly, A. (1971). *Gospodarstwo domowe i jego rola społeczno-ekonomiczna (Household and its socio-economic role)*. Wydawnictwo KiW, Warszawa, p. 12.
4. Household budgets in 2006, Central Statistical Office, Warsaw 2007.
5. Household budgets in 2007, Central Statistical Office, Warsaw 2008.
6. Household budgets in 2008, Central Statistical Office, Warsaw 2009.
7. Household budgets in 2009, Central Statistical Office, Warsaw 2010.
8. Household budgets in 2010, Central Statistical Office, Warsaw 2011.
9. Household budgets in 2011, Central Statistical Office, Warsaw 2012.
10. Household budgets in 2012, Central Statistical Office, Warsaw 2013.
11. Household budgets in 2013, Central Statistical Office, Warsaw 2014.
12. Household budgets in 2014, Central Statistical Office, Warsaw 2015.
13. Household budgets in 2015, Central Statistical Office, Warsaw 2016.
14. Household budgets in 2016, Central Statistical Office, Warsaw 2017, p. 15
15. Kedzior, Z. (1992). *Gospodarstwo domowe – podmiot gospodarujący (Household – business entity)*. Wydawnictwo Instytutu Rynku Wewnętrznego i Konsumpcji, Warszawa, pp. 3-4.
16. Marciniak, S. (Ed.) 2004. *Makro- i mikroekonomia. Podstawowe problemy współczesności (Macro and microeconomics. Basic problems of contemporary Times)*. Wydawnictwo Naukowe PWN, p. 200.
17. Mikula, A. (2017). Changes in the structure of households' consumption expenditures in selected countries of the European Union, *Economic Science for Rural Development*, No. 46, p. 211.
18. Piotrowski, J. (1970). *Współczesne gospodarstwo domowe i jego funkcjonowanie [w:] Ekonomiczno-społeczna rola gospodarstwa domowego (Contemporary Household and its Functioning. In The socio-economic role of a household)*. Wydawnictwo CRZZ, Warszawa, p. 76.
19. Siedlecka, A. (2015). *Srodowiskowe aspekty funkcjonowania wiejskich gospodarstw domowych na obszarach przyrodniczo cennych województwa lubelskiego (Environmental Aspects of the Functioning of Rural Households in Naturally Valuable Areas of the Lubelskie Province)*. Wydawnictwo PSW JPII, Biała Podlaska, p. 28.
20. Syrek, M. (1980). *Ekonomiczne funkcje współczesnego gospodarstwa domowego (The economic functions of a modern household)*. Wydawnictwo Uniwersytetu Śląskiego, Katowice, p. 25.
21. Szczepanski, J. (1970). *Elementarne pojęcia socjologii (Elementary Concepts of Sociology)*. Wydawnictwo PWN, Warszawa, p. 300.
22. Upite, I., Pilvere, I., Nipers, A., Krievina, A. (2014). Loyalty of consumers to food in Latvia, *Economic Science for Rural Development*, No. 35, p. 62.
23. Utzig, M. (2016). Struktura wydatków konsumpcyjnych ludności wiejskiej i miejskiej w Polsce (The structure of consumer expenditure of rural and urban population in Poland), *Handel wewnętrzny*, 1(360), p. 161

¹Corresponding author. Tel.: + 48 667 935 314; fax: + 48 83 344 99 50. E-mail address: a.siedlecka@wp.pl

²Corresponding author. Tel.: +48 52340804. E-mail address: izabel2000@wp.pl

SELECTED BUYING BEHAVIOURS OF CATTLE BREEDERS ON THE POLISH INDUSTRIAL FEED MARKET

Monika Szafranska¹, Dr. Ing.

¹University of Agriculture in Krakow, Poland

Abstract. The buying behaviours of purchasers of industrial feed are still not researched. Researchers have been focusing mostly on the consumer goods and services market. Therefore, the aim of the paper is to identify and characterise selected buying behaviours of cattle breeders on the Polish industrial feed market. The knowledge of purchaser's behaviours shaping their choice, apart from its cognitive dimension, may be used to design marketing actions in feed businesses effectively and reduce the vulnerability of their position on the Polish feed market. The main source of data used was primary information from author's own study (the PAPI method, a group of 200 cattle breeders from the Malopolska Province). The statistical analysis of the studied material encompassed aggregate statistical indicators as well as the non-parametric test "chi square". Results of studies were presented in a descriptive and graphic form. The conducted analysis shows that 85 % of farmers buying industrial feed use indirect distribution channels. Owners of the smallest stocks are the most likely to buy feed in outlets. Medium and large stock owners use direct channels due to order sizes. The most important factors for choosing industrial feeds are price, good location, and payment conditions.

Key words: cattle breeders, industrial feed, buying behaviours.

JEL code: M31, Q12, Q13

Introduction

The most important factor in animal production not only for production results, but also for the quality of the products, is the correct feeding of the animals. Rational feeding consists of providing all nutrients in the feed and covering the needs of animals depending on the direction of animal production (Dinev D. et al., 2003; Feldt T. et al., 2016). Farm feed, agri-food industry waste, and industrial feed can be used for this purpose (Piwowar A., 2013).

The industrial feed market is one of the most dynamically developing agricultural production means markets in Poland. It is characterised by a continuously changing structure of supply. Foreign feed companies intensify their marketing activities in Poland and those already operating are subject to diverse transformations. The effect of the process of internationalisation of the feed sector is the increase of competitiveness (Piwowar A., 2013; Ploplis E., 2017; Rynek pasz..., 2017). Competition in such a dynamic and internationalised environment requires understanding diverse attitudes of purchasers. The attitudes of purchasers towards the products offered on the market often have a significant impact on their purchase decisions and, in consequence, on the success of a given institution.

Purchasers' behaviours on the production means market include all subjectively and objectively defined rational and emotional behaviours during the purchase decision-making process. The buying behaviours of purchasers of industrial feed are still not researched. Researchers have been focusing mostly on the consumer goods and services market. The market of production means, including the industrial feed market, its meaning and specificity, which often needs a separate marketing approach, has not been discussed much. This is due mostly to a smaller number of entities on this market, lower number of transactions, and a different trade in goods structure (Wojciechowski T., 2003; Kubon M., 2006).

Therefore, the aim of the paper is to identify and characterise selected buying behaviours of cattle breeders on the Polish industrial feed market. The knowledge of purchaser's behaviours shaping their choice, apart from its cognitive dimension, may be used to design marketing actions

in feed businesses effectively and reduce the vulnerability of their position on the Polish feed market.

Breeder's behaviours concerning buying industrial feed were presented considering variables such as demographics, stock size, and distribution channel (direct/indirect). In order to characterise the buying behaviours of cattle breeders on the feed market, the author used the following research questions.

- What kinds of cattle feed do breeders buy?
- What determines the choice of a retail establishment as a place to buy industrial feed?
- How often do cattle breeders buy industrial feed?
- Which demographic traits of the breeders affects their buying behaviours on the feed market?

The main source of data used was primary information from author's own study. The research was conducted in 2017 using the PAPI method on a group of 200 cattle breeders from the Malopolska Province. In 2013, the number of bovine holdings in the analysed province was 42.200 (Urząd Statystyczny, 2014). Purposive sampling was used. To estimate the minimal sample size, the following formula was used (Szreder M., 2004):

$$n = \frac{\frac{1}{4} \cdot N}{N \cdot \frac{d^2}{z_{\alpha/2}^2} + \frac{1}{4}} \quad (1).$$

Where:

N – population size;

d – statistical error;

$z_{\alpha/2}$ – the value of random variable Z of normal standard distribution.

The maximal value of the statistical error of the result was assumed as 5 %. The necessary minimal sample size was determined as 101 persons. 210 breeders participated in the study. After excluding inconsistent and incorrectly filled questionnaires, data from 200 questionnaires was further analysed.

The questionnaire was divided into two parts and consisted of 21 questions in total. Most of the questions were closed, only two were open. The first part contained questions regarding buying behaviours of cattle breeders on the industrial feed market. The second part contained the respondent's particulars.

The interview was conducted with dairy and beef cattle breeders. 30 % of the respondents were women and 70 % were men. Only adult persons (over 18 years of age) participated in the study. Over 50 % of the respondents were between 18 and 35 years old. The two remaining groups of participants were middle-aged (23 %) and elderly (23 %). The majority of the studied group declared secondary education. Persons with basic vocational education constituted 25 % of the studied group. The remaining respondents declared tertiary education. Every second breeder has kept cattle for less than 5 years and every third for 5-10 years. The remaining respondents have done it for between 11 and 30 years. The analysed group of breeders usually kept stocks of up to 19 animals (44 %). The dominance of the smallest stocks is determined by the area where the research was conducted. The Malopolskie Province is characterised by the smallest average number of cows per holding in Poland (The results of..., 2017). In 40 % of holdings, the stocks consisted of 20–29 animals. The remaining holdings had 30 or more cows.

The statistical analysis of the studied material encompassed aggregate statistical indicators as well as the non-parametric test "chi square" (χ^2) allowing for an assessment of the significance of relationship between variables if at least one of them is non-measurable. All hypotheses were verified on the significance level $\alpha = 0.05$.

The trade credit interest rate was calculated based on the following formula (Bien W., 2008):

$$d = \frac{s \cdot 100}{100 - s} \cdot \frac{365}{t} \quad (2).$$

Where:

s — discount rate (% of rebate);

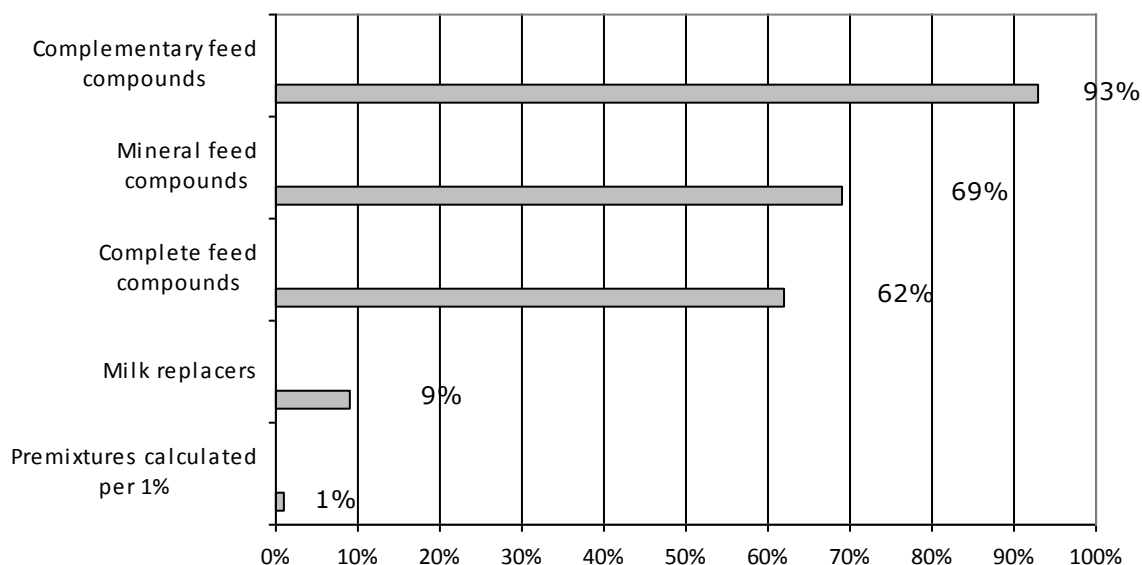
t — credit period (difference between the deferred payment term and cash payment term).

Apart from the primary sources they also used secondary sources which encompassed both domestic as well as foreign literature. Results of studies were presented in a descriptive and graphic form.

Factors determining the buying behaviours of cattle breeders on the Polish industrial feed market

Farm feed, agri-food industry waste, and industrial feed are used to feed cattle. The first group includes all feed manufactured in an agricultural holding, such as hay, field crop forage and silage, as well as cereals and legume seeds. Agri-food industry waste from sugar refineries, distilleries, oil mills, and mills can also be used to feed cattle (Alcaide E., 1996; Feltes M., et al., 2010). Due to diverse nutritional requirements of different farm animals' species, varieties, and functional types within particular species, industrial compounds supplementing farm feeds are used. Animal producers can also use complete industrial compounds. Industrial feeds make feeding easier and guarantee a fixed quality. Modern technologies used in industrial processing are based not only on chemical, but also on biotechnological processes. They allow for creating compounds and preparations improving the productivity and health of animals, as well as the extension or improvement of feed utility (Piwowar A., 2013).

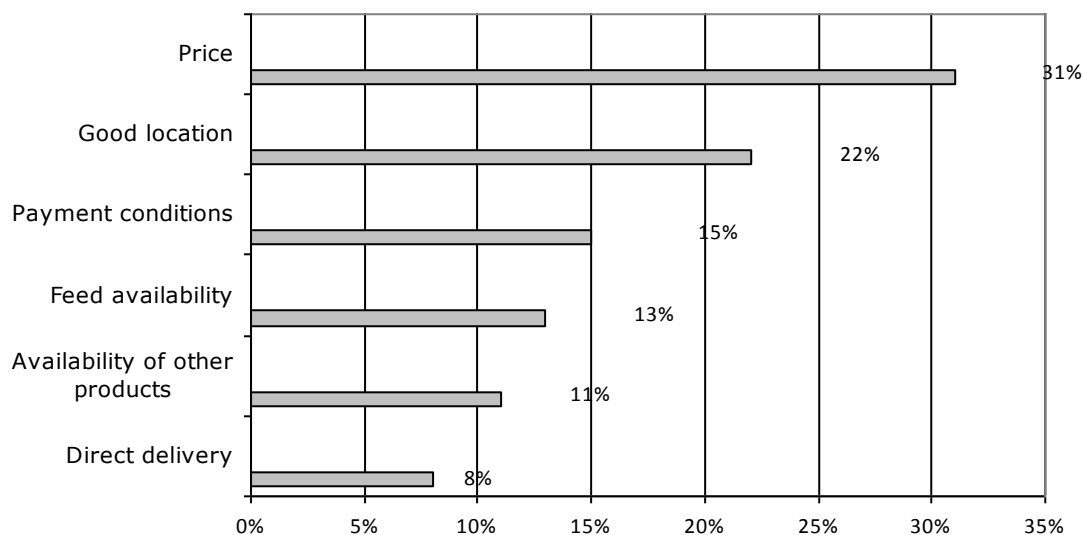
Industrial cattle feed includes complete, complementary, and mineral feed compounds, milk replacers, and pre-mixtures calculated per 1 %. According to the research conducted (Fig. 1.), breeders mostly bought complementary feed compounds (93 %). These compounds were mostly energy and protein concentrates and equalizers. Almost 70 % of breeders bought mineral feed compounds. 62 % used complete industrial compounds. Almost every tenth respondents fed calves with milk replacers. Only 1 % of breeders bought pre-mixtures calculated per 1 %. The low percentage share of this type of industrial feed in the overall structure of purchased feed is due to the fact that only farms having an identification number issued in accordance with the Regulation (EC) No 1831/2003 of the European Parliament and of the Council of 22 September 2003 laying down requirements for feed hygiene (Official Journal of ..., 2005) are able to purchase it.



Source: author's research, n=200, multiple choice

Fig. 1. Industrial feeds purchased by cattle breeders

The conducted analysis shows that 85 % of farmers buying industrial feed use indirect distribution channels. The remaining breeders bought feed directly from companies producing feed. The choice of the place of purchase is determined by stock size ($\chi^2=30.4$; $df=2$). Owners of the smallest stocks are the most likely to buy feed in outlets. Medium and large stock owners use direct channels due to order sizes. To buy feed directly from Polish producers, one has to purchase at least 3–5 tons (the minimum amount is established by each producer).



Source: author's research, n=200

Fig. 2. The most important factors for choosing industrial feeds

The most important factor for choosing an industrial feed outlet is price (31 % of answers). The obtained results are not surprising, as dairy cattle feeding costs are dominant in aggregate costs. The results are consistent with those obtained by other scholars (Norton N. et al., 1997; Khakbazan M., et.al, 2015; Berger H. et al., 2017; Oguz C. and Yener A., 2017). The conducted statistical analysis demonstrates that declaring the price as the most important factor for the

choice of purchase place was not determined by the demographic characteristics of the respondents (gender; $\chi^2=1.0$; $df=1$; education; $\chi^2=0.9$; $df=2$; age; $\chi^2=2.9$; $df=2$). Also did not depend on stock size ($\chi^2=0.8$; $df=2$) or distribution channel ($\chi^2=3.1$; $df=1$) either.

Good location was the second factor determining the choice of purchase place (22 %). According to statistical analysis, a good outlet location was important for women ($\chi^2=5.3$; $df=1$) and the oldest respondents ($\chi^2=27.5$; $df=2$). For 2/3 of people over 55 years of age, location was important when choosing an outlet. It was determined that the significance of this factor decreases with the increase of purchasers' education level. This determinant was important for all purchasers with a basic vocational education. Every fifth respondent with a secondary education chose this factor. No respondent holding a university degree chose this option. Due to the fact that the minimum number of answers in contingency tables should be higher than 5 observations, verification using the χ^2 test was not performed. Given the distribution channel, this factor was important for breeders buying feed from intermediaries ($\chi^2=30.4$; $df=1$). This was not relevant for those using direct marketing channels. Due to the fact that the distribution channel type is determined by production size, the bigger the stock, the less important the location ($\chi^2=35.2$; $df=2$).

The breeders also pointed to favourable payment conditions (15 %), concerning mostly the opportunity of using a trade credit and discounts for cash payments. Trade credits allow a deferral of payment for purchased goods to a date agreed upon with the supplier. Production means suppliers consider credit an instrument of sale and profit increase (Cao F. et al., 2018; Chod J., 2017; Tsao Y., 2017). The conducted research shows that when buying feed, breeders most often use trade credit, the date of payment of which is 1 month (30 days) on average. Almost every third respondent paid in cash, mostly due to the possibility of obtaining a rebate (discount), which was 2 % for cash payment. The remaining respondents chose payment terms within between 2 and 10 days, which gave them a 1 % discount.

According to the research, the main reason for which the breeders prefer a trade credit is their belief that it is free. A simple calculation demonstrates that trade credit not only is not free, but in most cases, may be much more expensive than a bank credit (Bien W., 2008). The starting point for calculating the price of the offered trade credit is always the discount the purchaser can get. In the discussed case, the interest rate on credits offered to breeders was 25.69 % (payment within 30 days) and 18.43 % (payment within 10 days). The average annual percentage rate of charge for overdrafts for farmers for 20.10.2017 was 11.95 % in Poland. Thus, the cost of an alternative bank credit is much lower. This factor was important for the youngest breeders ($\chi^2=78.6$; $df=2$), men ($\chi^2=76.9$; $df=1$), respondents with a higher education ($\chi^2=21.4$; $df=2$), and breeders buying feed directly from the manufacturer ($\chi^2=63.4$; $df=1$).

Feed availability was important for 13 % of the respondents. Statistical analysis shows that this factor is important for men ($\chi^2=30.1$; $df=1$), the oldest and the youngest breeders ($\chi^2=67.6$; $df=2$), and for people with a basic vocational and higher education ($\chi^2=56.1$; $df=2$), as well as for owners of larger stocks ($\chi^2=29.4$; $df=2$) and users of direct distribution channels ($\chi^2=34.0$; $df=1$).

Feed availability in outlets is necessary for proper inventory management in an agricultural holding, which directly depends on delivery frequency (Cardoso V. et al., 2014). The conducted research shows that most farmers order feed every two weeks (50 % answers) and 42 % of breeders order feed once a month. Less than 10 % buy feed once a week.

The respondents declare that the most popular way of ordering is via telephone (46 % of breeders). Almost 40 % of farmers buy feed in outlets. They are mostly smaller stock owners and indirect distribution channels users. The remaining respondents use e-mail for this purpose (16 %).

The availability of other products needed on a farm in an outlet is also important for breeders (11 % of answers). The statistical analysis demonstrates that the importance of this factors depends on education ($\chi^2=60.4$; $df=2$), respondents' age ($\chi^2=67.6$; $df=2$), and stock size ($\chi^2=17.2$; $df=2$). The least educated, the oldest, and owners of the smallest stocks chose this option most frequently.

Almost every tenth respondent indicated the possibility of direct delivery of the feed to the holding included in the price. It allows the farmers to save time and reduce transport costs. It was important for men ($\chi^2=54.3$; $df=1$), middle-aged respondents ($\chi^2=41.9$; $df=2$), and persons with a higher education ($\chi^2=18.3$; $df=2$). These persons owned the largest stocks ($\chi^2=31.4$; $df=2$) and used direct distribution channels the most frequently ($\chi^2=24.2$; $df=1$).

Conclusions, proposals, recommendations

- 1) The breeder decides where to buy feed. The decision is determined by many factors, the most important of which are price, good location, and payment conditions. The conducted research shows that almost every third breeder considers price when buying feed. Price is the only motive not determined by demographic characteristics of the respondents. The remaining motives depended on gender, age, and education level of the breeders, as well as on stock size.
- 2) When discussing feed price as a factor determining the place of purchase, companies selling feed should also consider the expectations of potential buyers regarding discounts, e.g. for payments in cash. According to the research, it is one of the most important factors for the choice of payment term.
- 3) The convenient location of a feed outlet is important mainly for smaller holdings, which mainly use indirect distribution channels. This is of less importance for larger entities that use direct distribution channels. Currently, feed producers are more likely to offer feed delivery directly and cover all logistics costs. In such a case, the location is less important as long as the products are delivered on time.
- 4) The easiness of direct contact, an important factor of advantage of suppliers located closer to holdings, has lost some of its significance due to the dynamic development of modern means of communication. The conducted research shows that currently, almost 2/3 of breeders order feed via telephone or e-mail.
- 5) Another important factor affecting farmers' buying behaviours is feed availability in an outlet. Almost 13 % of breeders participating in the study were dissatisfied with feed availability. Therefore, the improvement of actions related to assortment structure and feed distribution through indirect channels is needed. Properly functioning feed distribution channels should assure an appropriate amount of products meeting consumers' demand.
- 6) Given the high variability of buying behaviours on the market and their susceptibility to diverse factors, it would be interesting to study the dynamics and directions of these changes in the future.

Bibliography

1. Ambler, T. (1999). *Marketing od A do Z (Marketing from A to Z)*. Wydawnictwo Profesjonalnej Szkoły Biznesu, Krakow, pp. 337-338.

2. Bień, W. (2008). Zarządzanie finansami przedsiębiorstwa (Business Finance Management) Difin, Warszawa, p. 365.
3. *Business Tendency Surveys. A Handbook* (2003). Paris: OECD, p. 127.
4. Fontagne, L., Gourdon, J., Jean, S. (2013). Transatlantic Trade: Whither Partnership, Which Economic Consequences? *CEPII – Policy Brief*, September, No. 1, p. 4.
5. Forgacs, C. (2006). A mezogazdasági kistermelők jövője az átalakuló mezőgazdasági piacokon (Future of Smallholdings in Regoverning Markets). *Gazdalkodás*. No. 6. pp. 29-41.
6. Karanassou, M., Sala, H., Salvador, P. F. (2007). *Capital Accumulation and Unemployment: New Insights on the Nordic Experience*. IZA Discussion Paper, 3066. Retrieved: <http://ssrn.com/abstract=1025889>. Access: 16.09.2012.
7. *Kohaliku omavalitsuse uksuste voimekuse indeks 2013 (Local Governments Capacity Index 2013)* (2014). Geomedia. 57 p. Retrieved: http://www.fin.ee/public/KOV/Uuringud_ja_analuusid/2014_kov_voimekuse_indeks_loppversioon.pdf. Access: 15.11.2015.
8. Makuteniene, D. (2004). Zemes naudojimo intensyvumo priklausomybe nuo ukininku ukiu dydzio Lietuvoje (Land Use Intensity Dependence on the Size of Farmers Farms in Lithuania). Vagos: *LZUU mokslo darbai*, Volume 18, Issue 65, pp. 60-69.
9. *Maszynowa Wspolnota w Unii Europejskiej (Machinery Community in the European Union)* (2002). Retrieved: <http://www.ppr.pl/arttykul-maszynowa-wspolnota-w-unii-europejskiej-20152-dzial-9.php>. Access: 10.12.2015.
10. Orlova, U. L. (2013). *Socialiai globojamu vyresnio amziaus asmenu gyvenimo kokybes veiksniai (The Quality of Life Factors of Assisted Elderly People)*. Gerontologija 2013; 14(2), pp. 96-105.
11. Pajtinkova Bartakova, G., Gubinova, K. (2012). Udrzatelny marketingovy manazment (Sustainable Marketing Management). Trencin: *Institut aplikovaneho manazmentu*. p. 241.
12. Phelps, E. S. (1972). *Inflation Policy and Unemployment Theory*. New York: Norton. p. 322.
13. Pietrzak, M., Roman, M., (2014). Rozwoj transportu jako sila napędowa procesow globalizacji i regionalizacji miedzynarodowej (Development of Transport as a Driving Force of Globalization and Regionalization of the Economy), *Logistyka* 4/2014, pp. 3639-3648.
14. Pukenas, K. (2009). *Kokybinio duomenų analize SPSS programa: mokomoji knyga (Qualitative Data Analysis Using SPSS Programme: Teaching Book)*. Lietuvos kuno kultūros akademija. Kaunas: LKKA. p. 93.
15. Racine, J.B. Reymond, H. (1977). *Analiza Ilosciowa w Geografii (Quantitative Analysis in Geography)*. PWN, Warszawa, p. 254.
16. Sepp, V., Noorkoiv, R., Loodla, K. (2009). Eesti kohaliku omavalitsuse uksuste voimekuse indeks: metoodika ja tulemused, 2005–2008 (Estonian Local Government Capacity Index: Methods and Results, 2005–2008). In *"Cities and Rural Municipalities in Figures 2009"*. Statistics Estonia. pp. 10-42.
17. Soufani, K. (2002). On the Determinants of Factoring as a Financing Choice: Evidence from the UK. *Journal of Economics and Business*, Volume 54, Issue 2, pp. 239-252.
18. Varnik, R. (2008). Piima kokkuostuhind jaab tootmiskuludele alla (Purchase Price of Milk Falls below the Cost of Production). *Maamajandus*, Volume 2008, pp. 18–21.
19. Wojewodzka-Wiewiorska, A. (2014). Dynamika rozwoju społeczno-ekonomicznego gmin wiejskich wojewodztwa mazowieckiego na tle innych typow gmin (Dynamics of the Socio-Economic Development of Rural Communes Relating to Other Types of Communes in the Masovian Voivodeship). *Journal of Agribusiness and Rural Development* 2014, no 2, pp. 213-223.
20. Zvinkliene, A. (2012). Socialine lygiu galimybiu kontrolieriaus tarnybos refleksija: Lietuvos „Web 2.0 bendruomenes“ atvejis (Social Reflection on the Office of the Equal Opportunities Ombudsperson: Case of Lithuanian Web 2.0 Community). *Lyciu studijos ir tyrimai*, No. 10, pp. 60-70.

THE IMPACT OF THE LEVEL OF ECONOMIC DEVELOPMENT ON FOOD CONSUMPTION IN POLAND

Joanna Szwacka-Mokrzycka¹

¹Warsaw University of Life Sciences – SGGW

Abstract. The article presents the directions of the development of food consumption in Poland in view of the changes occurring in the EU. The aim of this paper is to identify the relationship between the level of economic development of a country and the consumers' standard of living. The starting point of the discussion is an interdisciplinary presentation of the current development of the theory of consumption. Next, the changes in food consumption in Poland are presented against the background of general European trends in 2009–2015. The explored trends include both the quantitative and qualitative transformations in the amounts and structure of food consumption. This paper was developed based on secondary information sources published by the Polish Central Statistical Office (GUS) and Eurostat. It has been shown that the presented direction of changes follows in step of the research in this field performed during the last 15 years.

Key words: food consumption in Poland, level of economic development, food expenses, trends in consumption changes.

JEL code: Q13

Introduction

The success of Poland in the EU is being undeniably demonstrated by its position among the European Union leaders. It is reflected by the high level of economic growth, which reached 3.3 % of GDP, with the European average of 1.3 %. What is more, Poland is the only EU country which has shown no signs of recession since 2003. Clearly, the success of Poland mostly results from the use of European funds.

Regarding the changes in food consumption associated with the socio-economic development, the accompanying increase in consumers' income leads, on the one hand, to a relative decrease of the share of expenditure on food in the total expenditure structure (Engel's law), but on the other hand, to changes in the level and structure of food consumption. One could venture that the segment of buyers of high quality food produced with ecological methods is becoming increasingly important in the food market in Poland.

The verification of Engel's law is of interest to many scientists, which has been reflected in numerous Polish and foreign studies (Zielinska, 1978; Szwacka-Salmonowicz, 2003; Szwacka-Mokrzycka, 2013; Kwasek, 2012; Janos-Kresło, Mroz, 2006).

The chief aim of this paper is to identify the relationship between the level of economic development of a country and the consumers' standard of living.

Research results and discussion

1. The current knowledge of consumption science

Consumption is an interdisciplinary subject. Many other fields, such as economy, sociology, psychology, and management contribute to it. The theory of consumption and its interpretation are also firmly anchored in marketing management. We shall include here both the objective and subjective approaches within the established market relations and their implementation using marketing instruments. In practice, various approaches to analysing consumption reveal its interdisciplinarity, which is illustrated by the analysis of the economic and sociological approaches in particular, leading to defining consumption as a socio-economic category (Byłok 2013). The treatment of consumption in the field of economy is grounded in the needs and the hierarchy and methods of their realisation (Maslow, 1990). From the perspective of the discussed economic

context, the methods of fulfilment of consumption needs are also important. With regard to the mechanisms of market economy, there is no doubt that the realisation of needs takes place mostly through goods and services purchased through market exchange. It is reflected in the definition suggested by Bywalec & Rudnicki, who demonstrated that "consumption is an act of fulfilling human needs through the use of material goods and services" (Bywalec, Rudnicki, 2002). The deliberation on this topic leads to the conclusion that the process of consumption is deeply rooted in culture and society. A broad reference to such an approach to consumption can be found in Szczepanski, who stresses the "(...) definition of consumption as a process of social reproduction and a sphere of social cooperation, comprising (...) conditions of social life: working conditions, standard of living of the community, consumption fund" (Szczepanski, 1981). Whereas in the sociological approach to consumption it is the social nature of human needs which is underlined. What we mean are the higher order needs, which appear as the society grows. The emergence and development of these needs are particularly affected by the social environment and the used forms and means of communication.

Over the last 15 years, the consumption science mostly focused on the processes of integration and globalisation of the world economy. Many researchers in this field studied the issues of new trends in consumption and the creation of a new consumer culture associated with it (Komor 2000; Mazurek-Lopacinska, 2003; Bywalec, 2010; Tkaczyk, 2012; Koszewska, 2013; Dabrowska, Bylok, Janos-Kreslo, Kielczewski, Ozimek, 2015; Malysa-Kaletka, 2015). The position of food consumption sciences began to form in the 1970s. Zielinska (1978) was the founder of these studies, followed by Janos-Kreslo (1989), Szwacka-Salmonowicz (1996), Żelazna (2000), Szwacka-Salmonowicz (2003), Gutkowska, Ozimek (2005), Urban (2005), Szwacka-Mokrzycka (2015), and many other scientists.

2. The level of economic development of Poland compared to the EU

It should be noted that the global crisis of 2008 and 2009 negatively affected the economic situation of the European Union Member States. In Poland, the GDP dynamics slowed as well, yet in 2009 it remained positive, at the level of 1.6 % (Szwacka-Mokrzycka, 2015). Whereas in the remaining EU Member States, the downward trend could not be reversed. In the following years, 2010-2011, while the GDP growth dynamics in the EU countries stayed at the level of 1.8 and 1.3, it significantly exceeded these numbers in Poland, where the numbers for 2010 and 2011 were 3.8 % and 3.9 % respectively. It ensued from the noticeable reduction in the negative consequences of the economic crisis in Poland in 2010 due to increased economic activity. In the subsequent years, however, the GDP growth dynamics in Poland slowed following the economic recession of the first half of 2013. It was a result of a combination of the following factors: limited private investment due to economic slowdown, more difficult access to credit, restrictive fiscal policy, and a decrease in the propensity to consume (Szwacka-Mokrzycka, 2013). The following year 2014 showed a significant improvement in the economic situation of all EU Member States, albeit with a large variation in their GDP growth rates compared to 2013. In 2014, Poland ranked in the group of countries with relatively high growth rates, i.e., 3.4 % compared to the previous year. The group of countries with relatively highest growth rates, above 3 %, included the following states: Ireland, Hungary, Luxembourg, Malta, and the United Kingdom. Conversely, a relatively small GDP growth rate in 2014 compared to 2013, namely below 2 %, was observed in Belgium,

Denmark, Germany, Greece, Spain, and the Netherlands. Finland, Italy, Cyprus, and Croatia, however, failed to reverse the downward trend.

The GDP growth rate in Poland corresponds to its position in Europe (among the developing countries).

Table 1

Actual Individual Consumption and GDP in EU in 2016 EU-28=100, real prices

Specification	AIC* per capita	GDP per capita
EU	100	100
Luxembourg	132	267
Germany	122	123
Austria	118	126
United Kingdom	115	108
Denmark	114	125
Finland	114	109
Belgium	113	118
France	111	105
Netherlands	111	128
Sweden	111	124
Ireland	97	177
Italy	97	96
Cyprus	90	81
Spain	89	92
Lithuania	86	75
Portugal	82	77
Malta	81	95
Czech Republic	78	88
Greece	77	67
Slovakia	77	77
Poland	75	69
Slovenia	75	83
Estonia	71	74
Latvia	67	65
Hungary	63	67
Romania	63	59
Croatia	59	59
Bulgaria	53	48

AIC — Actual Individual Consumption, measured per inhabitant in PPS units

PPS — Purchasing Power Standard, an artificial currency used by Eurostat to express the actual GDP levels, to eliminate the influence of price differences between countries

Source: Eurostat Newsrelease, 91/2017/13 June 2017

It is necessary to point out the wide range of Actual Individual Consumption (AIC) and Gross Domestic Product (GDP) levels across the EU countries, which differ from the EU average between 53 % and 132 % (Table 1). The relatively highest rates were achieved by Luxembourg, Germany, Austria, the UK, Denmark, Finland, and Italy (32-20 % above the average for the EU). Whereas the relatively lowest rates belonged to Estonia, Latvia, Romania, and Hungary, 30-40 % below the EU average. Poland ranked in the group of countries (the Czech Republic, Greece, Slovakia, Slovenia, Poland) with the rates from 20 % to 25 % below the EU average (Table 1).

The effects accompanying the increased economic growth rate in Poland result from the integration with the European Union. The Polish accession to the EU enabled the development and

modernisation of the economy due to increased investment size, new technologies, facilitated access to the markets of other member states, greater scale and specialisation of production, improved quality and effectiveness of management. The integration also accelerated the flow of direct foreign investments. Integration processes have a particularly strong impact on trade volumes. The free movement of goods entails not only a customs union and elimination of non-tariff barriers but also improved conditions for our producers-exporters. Both the increased export dynamics and import absorption are results of the accession.

The influence of the integration processes on the transformation of the food economy is long term and stems from the need to adjust to the EU. The incorporation of the world economics into globalisation processes led to a polarisation of businesses into transnational corporations and subcontractors.

The transformations of food economy in Poland have been taking place under the influence of global companies involved in processing and trade.

3. Food consumption in Poland – trends

With regard to the food market, the principles established by Keynes and Engel, which refer to the regularities in income spending and involve changing the general relationship in the consumption expenditures and savings as well as changing the structure of expenses, have been confirmed multiple times. According to Keynes' law, as the income grows, so does the proportion of general consumption spending in total expenses decrease. Whereas in the light of Engel's law, the proportion of food expenses decreases with the growth of income. Regarding the changes in food consumption associated with the socio-economic development, the accompanying increase in consumers' income leads, on the one hand, to a relative decrease of the share of spending on food in the total expenditure structure (Engel's law), as well as to changes in the level and structure of food consumption on the other. It is expressed by the decreasing share of spending on absolutely basic and basic food products (cereal products, potatoes, animal fat), with a relatively increased share of spending on luxury food products (finer meat types, fresh and processed fruit and vegetables). The trend outlined so is accompanied by increased spending on food services both away from home and delivered home (catering).

What is important for these deliberations is how they relate to an empirical verification of Engel's law. It is according to Engel's coefficients, which relate spending on food to total expenditure, that the living standards of the society are evaluated. The more relatively low the coefficient, the higher the living standard of the studied social group. Conversely, a large share of spending on food in the total spending indicates unfavourable material conditions of a given social group. The studies to verify Engel's law have been of interest to many scientists, which is shown by numerous Polish and foreign publications (Zielinska, 1978; Szwacka-Salmonowicz, 2003; Szwacka-Mokrzycka, 2013; Kwasek, 2012; Janos-Kreslo, Mroz, 2006). The studies carried out in this area show that, in the first decade of the 21st century, there was a visible stimulation of transformations which involved increased saturation of food needs, qualitative transformations, and substitutive processes. It is demonstrated by an evident decrease in the income elasticity coefficients of food consumption, particularly in relation to basic food products. Whereas the demand for highly processed goods remains at a relatively high level. Hence, it can be assumed that household incomes are still a crucial determinant of the proximity between the transforming countries and the most developed countries of the EU.

When analysing the consumption expenditures of households in Poland in 2009–2015, a trend for a relative decrease in the proportion of food expenditure in the total expenditure structure can be observed. It results from the changes in consumption associated with the growing living standard of the society (Table 2).

Table 2

**Average total monthly expenditures of households in Poland in 2009–2015
 (in PLN per person)**

Household type	2009	2011	2015
Total expenditure	956.68	1015.12	1091.19
Expenditure on consumer goods and services	913.86	971.83	1042.91
Expenditure on food and non-alcoholic beverages	240.08	254.13	262.32
Share of expenditure on food in total expenditure (%)	25 %	25 %	24 %

Source: author's calculations based on Budgets of Households (2016)

In the light of the data compiled in Table 2, it can be stated that the total expenditures of households increased in 2009–2015. The observed trend also includes expenditures on food and non-alcoholic beverages. Simultaneously, it should be noted that since food expenditures in the 2010s grew much more slowly than total expenditures, their total share decreased over the analysed period from 25.0 % in 2009 to 24.0 % in 2015. These data confirm the general trend observed with regard to the member states of the EU. Referring the observed trend to the results of studies carried out in the EU-28 countries, it should be stated that in 2013–2014 the share of food expenditure in the total expenditure was similar in the developing countries and in Poland (Szwacka-Mokrzycka, 2015). Significantly lower values were reported for highly developed countries, where this share remained relatively small, at the same time being highly diversified depending on the studied country. As stated previously, it is associated with the levels of economic development and citizens' wealth. It can be assumed that the increase in the expenditure on consumer goods and services in Poland was moderate compared to the remaining EU countries. The prices of consumer goods and services are still highly diversified within the EU, indicative of their strong correlation with the level of economic growth and the purchasing power of the citizens of each country. The analysis of the data from the recent years reveals that, compared to the remaining EU countries, food prices are relatively lowest in Poland, Bulgaria, and Romania, and relatively highest in Austria, Denmark, and Sweden (Eurostat Newsrelease, 2016).

Changes in the level and structure of consumption are associated with many factors, both economic and social (Matuszewska, 1992). In literature, the determinants of the food market are usually divided into economic, social, psychological, and marketing-related (Szwacka-Salmonowicz, 2003). The adopted division has been closely related to the nature of the products which fulfil the dietary needs of consumers. It has been empirically demonstrated that, in the market of basic food products, the economic and social factors are of utmost importance. Whereas in the market of luxury food products, the significance of psychological and marketing-related factors is increasing.

The development of food consumption in Poland fits into the food economy model based on the two main paradigms of sustainable growth and globalisation. The paradigm of sustainable development emerges from the economy based on small-scale farms, which serve both economic and social functions. It is built on multi-directional aims - regarding food production, fulfilling social and cultural needs, and caring for the natural environment. It is a response to the present-day demands of the food economy, where it is crucially important to entirely fulfil the needs of the consumer with a particular focus on its qualitative aspect. The evolution of the sustainable

development paradigm is closely related to the ecological movement (with its origins in the 1970s), evoking the ethics of the natural environment and marking a secure path for creating the consumer behaviours of ecologically aware societies. The development of food consumption in the globalisation paradigm has strong internationalising connotations. Globalisation involves the diffusion of identical or similar consumption patterns in a supra-national dimension. What favours the globalisation processes is the homogenisation of consumption, expressed in the unification of its level and structure in the spatial and socio-occupational cross-sections of private households. A convergence of consumption ensues, on the substrate of global processes. Important factors stimulating the homogenisation processes include the emergence of the so-called global production and consumption culture, increased spatial and socio-occupational mobility of people, and dynamic growth of large cities and conurbations. Moreover, the processes of homogenisation of consumption are also accelerated by the standardisation of products and the development of trans-national corporations and online communication. The homogenisation of lifestyles of people in the demographic and social cross-sections contribute to the global convergence of consumption as well. The blurring of distinctions between the people's life styles occurs on various planes. What is most symptomatic of our times, is the shifting of the borders of nations, and social and racial affiliations. The convergence of people's behavioural patterns also takes place in the social and demographic dimensions. The changes taking place in consumption result in an intensifying global detraditionalisation. This trend is expressed in the reduced roles of local, occupational, and family traditions in the shaping of consumer behaviour. As shown by the studies carried out in the food market, detraditionalisation did not lead to the unification of consumption patterns there. Instead, there is a clear polarisation between unified and diversified behavioural patterns, corresponding to the ethnocentric attitudes of Poles.

Conclusions

- 1) The experiences over 13 years of integration with the EU indicate that the consumption structure in Poland is converging towards the developed countries of the Union. It confirms the assumption that household incomes are still a crucial determinant of the proximity between the transforming countries and the most developed countries of the EU. The convergence of consumption patterns occurs not only in a long-term perspective but is stimulated by the common integration policy as well.
- 2) While observing the changes in consumption through the lens of demand and different needs of consumers in the European and global dimensions, one should perceive the effect of the processes of globalisation and integration on the reshaping of the behavioural patterns of food consumers, seeking the common denominator for societies regardless of cultural barriers. The globalisation and integration processes lead to the formation of common patterns containing all determinants, as the basis of their convergence, within their structures.

Bibliography

1. Budgets of Households, (2016), GUS, Warszawa.
2. Byłok, F. (2013). Konsumpcja, konsument i społeczeństwo konsumpcyjne we współczesnym świecie, „Slask”
3. Sp. z o.o. Wydawnictwo Naukowe, Katowice.
4. Bywalec, Cz., Rudnicki I. (2002). Konsumpcja, PWE, Warszawa.
5. Bywalec, Cz. (2010). Konsumpcja a rozwój gospodarczy i społeczny, Wydawnictwo C.H. Beck, Warszawa.
6. Dąbrowska, A., Byłok, F., Janos-Kresło, M., Kielczewski, D., Ozimek, I., (2015). Kompetencje konsumentów – innowacyjne zachowania –zrównowazona konsumpcja. PWE, Warszawa.

7. Europe in figures, (2015). Eurostat yearbook.
8. Eurostat Newsrelease, (2016). 118/2016/15 June 2016
9. Eurostat Newsrelease, (2017). 91/2017/13 June 2017
10. Janos-Kreslo, M, Mroz, B., (2006). Konsument i konsumpcja w gospodarce rynkowej. SGH, Warszawa.
11. Kwasek, M., (2012). Wzorce konsumpcji żywności w Polsce. Studia i Monografie. IERiGZ. Warszawa.
12. Maslov, A.M., 1990. Motywacja i osobowość. Instytut Wydawniczy PAX. Warszawa.
13. Matuszewska, I. (1992). *Sensoryczne metody ocen konsumenckich – charakterystyka i zastosowanie*. Przemysł Spożywczy, 5/6
14. Małyś-Kaleta, A. (2015). *Kierunki oraz determinanty zmian struktury konsumpcji w krajach Unii Europejskiej*, Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, Nr 231/2015, Katowice.
15. Rocznik Statystyki Międzynarodowej (2015). Central Statistical Office. Warsaw.
16. Szwacka-Mokrzycka, J., (2015). *The Standard of Living of Households in Poland Compared to Other EU Member States*. Journal of Advances in Agriculture, November 20/2015.
17. Szwacka-Salmonowicz J., (2003). Zmiany zachowań nabywców jako determinanta kształtowania strategii segmentacyjnych przedsiębiorstw przemysłu spożywczego w Polsce. Wydawnictwo SGGW, Warszawa.
18. Szwacka-Mokrzycka J., (2013). Tendencje rozwojowe popytu i podaży żywności w Polsce. Wydawnictwo SGGW, Warszawa.
19. Szczepanski J. (1981), Konsumpcja a rozwój człowieka. Wstęp do antropologicznej teorii konsumpcji, PWE, Warszawa.
20. Zielinska Z., (1978). *Współczynniki elastyczności dochodowej jako mierniki przemian w strukturze spożycia żywności w Polsce*, Handel Wewnętrzny nr 5.

THE ASSESSMENT OF EUROPEAN BUSINESS EXCELLENCE MODEL CRITERIA PERFORMANCE IN LATVIAN ENTERPRISES

Andzela Veselova Mg. oec.,
University of Latvia, Riga

Abstract. There are certain companies that try to develop their own performance and efficiency hand in hand with the regional business performance. One of the methods applied by these companies is the use of quality improvement in order to improve the business results.

EFQM (European foundation for quality management) business excellence model is applied to ensure successful operation of the company, including increased satisfaction of the customers regarding the goods/services offered by the company, thus guaranteeing high competitiveness of the business. EFQM model is simple, easy-to-understand and practically applicable in any enterprises. However, the application options may differ between large and small & medium companies.

The European Foundation for Quality Management (EFQM) Excellence Model provides guidance and support for business organisations to improve their quality management. Novelty: the research shows the actual scores achieved by enterprises in their assessment for EFQM performance, the effect of enterprises size on the all model. To the EFQM model users, it provides guidelines for addressing perceived performance gaps in their pursuit of recognition for excellence.

The aim of the research is to assess the level of performance of EFQM business excellence model in Latvian enterprises, make conclusions and give proposals for improvement of performance results of model criteria, basing on theory and survey. The main tasks of the research are to provide the theoretical description of EFQM model, to assess the EFQM model application level in Latvian enterprises, come to conclusions and elaborate proposals. Methodology of the research analysis consisted of relevant literature studies and EFQM model-survey carried out in the enterprises.

The results of the survey show that the level of compliance to the EFQM criteria depends on scale of the enterprises.

Key words: business excellence model, enterprises, self-assessment.

JEL code: L15, L 26, M 11

Introduction

With increasingly intensifying competition on the global and European markets, the success of enterprises to large extent depends on ability to manage the processes and resources available to enterprises efficiently, achieving results that are appropriate to the goals of the business. Initially, the company should assess the current situation in the enterprise, identifying areas where improvements are necessary. It should take into account that taking over the methods applied by another successful and recognized company does not guarantee the success. The operating methods of successful and recognized enterprises need to be understood and adapted to the situation and circumstances of a particular company individually.

Several scholars (Hendrick K.B., 1996; Singhal V.R., 1996) have tested the hypothesis and concluded that using effective quality management programmes, the company's performance can be improved. Given this assertion, the Quality Award winning companies are far ahead of those enterprises that have not received this kind of awards, based on a comparison of income-based indicators. The authors also have analysed the impact of received Quality Awards on changes in market value of enterprises and conclude that the stock market reacts positively to notifications on prizes, mainly because the quality of the offered goods / services has improved due to the implementation of the Business Excellence Model. Considering previous research, which relied on surveys of managers' opinion, this research based on the scores achieved by organizations in their assessment for EFQM business excellence model admission. Research shows the effect of size on

the whole EFQM model, which so far has been neglected in the publication. The aim of the research is to assess the level of performance of EFQM business excellence model in Latvian enterprises, make conclusions and give proposals for improvement of performance results of model criteria, basing on theory and survey. The main tasks of the research are to provide the theoretical description of EFQM model, analyse the EFQM model application level in Latvian enterprises, come to conclusions and elaborate proposals. Methodology of the research analysis consisted of relevant literature studies and EFQM model-survey carried out in the enterprises.

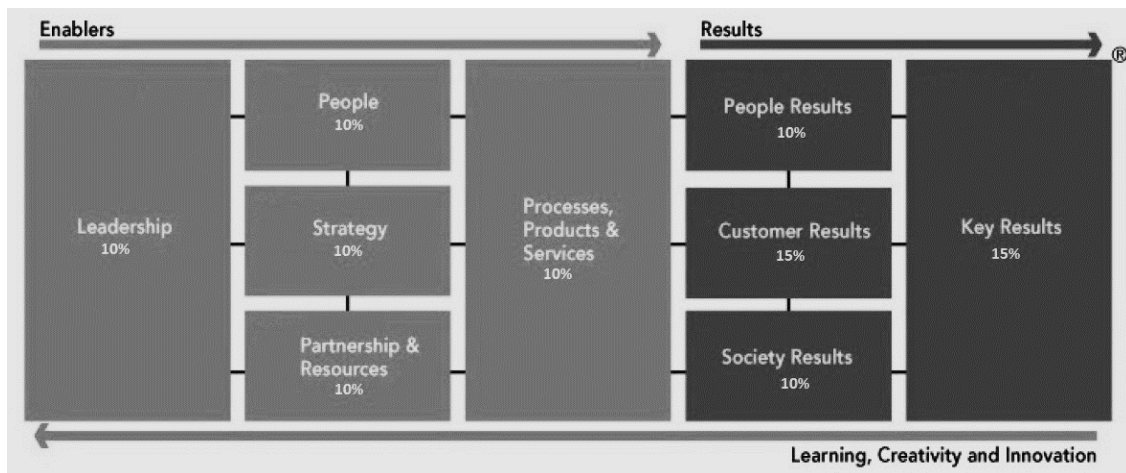
Theoretical background

According to the Porter L. and Tanner S., (2001) EFQM model is a powerful diagnostic tool that provides interested parties with learning opportunities in order to identify the company's strengths and improvement possibilities. Besides, this model can provide the enterprise with the opportunity to establish the difference between the best practice and actual performance, ensuring the rational basis for assessment of achievements and progress on the way to clearly stated aims and tasks (Sampaio P. , et al., 2012).

The guidelines for the EFQM business excellence model were developed by the European Quality Management Foundation in the early 1990s, and since then these guidelines have been continuously improved by users. Essentially, the excellence model is a framework for interpreting of excellence guidelines implemented in real action. In order to maximize the benefits of mastering EFQM's business excellence model in the enterprise, the management should initially ensure that the company's operations are in line with aforementioned guidelines. In case the enterprise fails to understand and accept the statements, the model mastering process may be complicated and even pointless (Hakes C., 2007). The author of the paper thinks that with the help of the initial assessment, the enterprise can avoid waste of resources, channelling them into procedures that would help to implement the excellence guidelines in the company. The EFQM guidelines can serve as a basis for approval of policy at a senior management level.

Since 2012, the guidelines of EFQM model have slightly changed, but their main statements remain the same. The adopted guidelines of EFQM model do not differ significantly from the previously known guidelines that existed until 2012 and were based on Total Quality Management, maintaining 8 basic principles that characterize the company's excellence (European Foundation for Quality Management, 2013).

Figure No 1 shows the EFQM business excellence model improved in 2012. Some of the criteria have been updated and several numeric values of the award criteria have been changed.



Source: European Foundation for Quality Management, 2013

Fig. 1. European Business Excellence Model Criteria since 2012

The changes affected two criteria - "Strategy" and "Processes". From the previous model, the word "policy" was removed from the "Policy and Strategy" criterion, since according to the authors of the European Excellence Model criteria, the company's strategy already involves the implementation of a certain policy of the company, and therefore, it is not necessary to emphasize it twice. The changes affected also the "Process" criterion, which was supplemented by the aspect of products and services regarding their development and promotion, which was not emphasized in the previous version of the model. In addition, the numerical values of the benchmarks changed, namely, they were "levelled" by assigning 100 points to each criterion except "customer related results" and "key performance results" valued 150 points out of a possible 1000. The model of 2012 keeps the maximum number of points in Approach criteria, which is 500 points achievable by the company through self-assessment according to the EFQM business excellence model and 500 additional points in the results section. "Approach" is the cause of the „Results“, but it must be acknowledged that "Approach" also reflect the interconnections between the criteria and they are not normally characterized by predictable causes and consequences in descriptive manner (Suckling S., Jacobs B., 2007). The literature contains evidence from researchers that the "Approach" criteria and the "Results" criteria are not separated (within each block).

For instance, Rusjan (2005) is convinced that the "Approach" criteria are interrelated and form a complex structure. Thus, excellence in business approaches is interpreted as one comprehensive approach whose individual dimensions, such as the social, technical dimension, policy and strategy, affect one another, thus reflecting the mutual dependency of the criteria. This principle also applies to the "Results" criteria that are interrelated - changes of one criterion affect other criteria, regardless of whether the criterion relates to tangible or intangible results (Llugar B. J., et al., 2009).

Several studies have analysed the differences between EFQM model application level and company's level of performance (i.e., Ahire S. L & Golhar D.Y., 1996; Hendricks K.B. & Singhal V.R., 2001; Zhao X. 2004; Roca V. 2006; Jayaram J. 2010; Zhang D., 2012). Dean J.W. & Bowen D.E. (1994) and Watson J.G. & Korukonda A.R. (1995) in their studies point out that many companies failed to implement the EFQM business excellence model due to the use of standardized approaches. Several authors (i.e. Gomez J. & Martinez M., 2011; Sampaio P., Saraiva P. & Monteiro A., 2012) claimed that there could be several types of approaches and selling. Williams R.

(2006) observed that a company can achieve a high level of excellence in certain criteria and it should be in line with the strategy of the particular company as well as with the needs of the company. Most often, this is observed in the case of small enterprises due to their necessity to be more flexible to survive, and therefore typical use of informal processes and direct communication between employees and managers. Large enterprises, on the contrary, tend to emphasize the efficiency and wider use of control systems. There is also empirical evidence of the impact of company size on the use of the EFQM business excellence model. For example, Sturkenboom J. (2001) and Kumar M. and Antony J. (2008) emphasized the need to adapt the EFQM business excellence model to small and medium-sized enterprises (SME), since the versions of the popular model have different criteria for SMEs and large companies (Escrib Ana B., de Menezes Lilian M., 2016).

Wilkes N. and Dale B. (1998) concluded in their study of self-evaluation and quality awards that small and medium-sized companies in the United Kingdom were generally aware of the EFQM model, but did not fully understand its benefits. They argued that fierce competition and the need to restore confidence in their business in the future contributed to the fact that SMEs wanted immediate results and postponed the implementation of the EFQM business excellence model. Human resource management studies have shown that management practices tend to vary between SMEs and large organizations. A study by Storey D.J., Saridakis G., et al., (2010), Zhao X., et al., (2004), Calvo-Mora, et al., (2015), found that the official organization of human resources management in large organizations undermines employees' perceptions of job autonomy and discretion, which is dangerous, because such an attitude reduce problem-solving capabilities and continuous improvement - an important part of the EFQM model's application.

Gustafsson A. et al., (2003) found that some practices based on process orientation directly affect customer satisfaction in large companies, but this effect is not obvious in small and medium-sized enterprises.

In addition, Angell L.C. & Corbett L.M. (2009) warned that small and medium-sized enterprises lacking in resource performance criteria find more difficult to obtain high evaluations of the EFQM business excellence model. Kumar M. and Antony J. (2008) concluded that the application of EFQM business excellence model in SMEs was too complicated, since this model turned out to be bureaucratic and its implementation took too much time. It was concluded that in large companies more emphasis is put on quality management process management (Lee G. L & Oakes I. 1995; Roca V., et al., 2006) and structural components such as formal employee training as well as collaboration with suppliers (Sun H. & Cheng T.K. 2002). Temtime Z.T. (2003) and Haar J.M. and Spell C.S. (2008) agreed that increasing the size of an enterprise means greater resources and savings benefits that make it easier to implement excellence. Especially for quality awards, Evans J.R. et al. (2012) stressed out the importance of measuring systems and forecasting that is more common in large companies. It draws to the conclusion, that the literature offers various evidences that the size of the company affects the application possibilities of EFQM. Therefore, the question, whether the application of EFQM in SMEs and large companies differs, remains open.

Research results and discussion

The author's opinion is that by understanding the guidelines of excellence and by taking into account the criteria of the EFQM business excellence model, Latvian companies can fully evaluate their performance according to the criteria of this model. A model with included criteria can be

viewed as a set of guidelines that SMEs or large companies pursuing excellence in their activities can use to assess their initial status, improve their planning and gradual implementation of the principles of excellence. As the model does not contain specific references to the actions to be taken to achieve excellence, the company itself determines the measures to achieve consistently high results, taking into account the specifics of the company's operations, the existing circumstances and the company's capabilities (Latvijas Kvalitātes asociācija, 2014). The author thinks that Latvian SMEs can take advantage of their relative strengths, especially with regard to flexibility, in order to implement the principles of excellence as efficiently as large companies.

Hendricks K.B. and Singhal V.R. (2001) have concluded that small businesses could benefit from the use of the EFQM model because, being a smaller company, it can enhance understanding of the core needs of clients and organizational learning can be more effective, for example, by organizing teamwork, thereby reducing their costs of excellence implementation.

Within the framework of this research, the author hypothesizes that the level of performance of EFQM criteria depends on the size of the company.

293 Latvian enterprises participated in the evaluation of the level of criteria implementation of the EFQM business excellence model. The survey was organized in 2016. According to the statistics database of Latvia, in the research participated 25 % of Latvia's large enterprises (total number in 2016 year was 238) almost 10 % of Latvia's medium enterprises (total number for 2016 was 1 592) and almost 1 % of Latvia's small enterprises (total number for 2016 was 8 575). (Latvijas Statistikas Parvaldes datu bāze, 2016). 73 or 25 % of participating companies were small enterprises, 158 or 54 % - medium enterprises and 62 enterprises, or 21 % - large enterprises. The participating enterprises represented different fields: trade, IT services, catering, construction, car repair shop, financial services, and marketing services. The European Excellence Model requires each of the criteria to be evaluated according to the five defined elements of the RADAR method: (European Foundation for Quality Management, 2016) *Results, Approach, Deployment, Assessment and Review*. The evaluation of Latvian enterprises' compliance with the EFQM model criteria was performed basing on the results of the evaluation matrix and approach criteria and their evaluation methodology.

In order to evaluate the approach criteria (leadership, staff, strategy, partnerships and resources, processes, products and services), the following values out of 100 for each criterion were used. 0 meant that there was no evidence or they were worthless; 25 - meant that there was some evidence; 50 - there is relevant evidence, 75 - meant that there was obvious evidence, and 100 - comprehensive evidence of application of a particular criterion. In order to evaluate the results' criteria, customer related results (image of the organization, communication, responsiveness etc.), staff related results (motivation, involvement, recognition, awards etc.), company related results (image of the company, responsiveness in contacts etc.), main operation results (financial results of economic activities of the company - turnover, price of shares etc.), the following values were applied: 0 meant that no results were obtained or information collected was not relevant; 25 meant that ¼ of the results show positive tendency and/or satisfactory performance for at least 3 years; 50 meant that around ½ of the results show positive tendency and/or consistently good performance for at least 3 years; 100 meant that all results show positive tendency and/or consistently good performance for at least 3 years. Maximum number of points in two criteria "staff-related results" and "society-related results" was 100, meanwhile the maximum number of points in criteria "customer related results" and "key performance results" was 150.

In general, the implementation of nine European Excellence Model criteria for SMEs and large companies was assessed also by respondents. Half of the respondents rated the criteria in the company with a score of 75 (median -75), the most commonly reported score is 75 points (moda-75) (scoring scale 0 to 100); the mean value of the criteria ranges from 64.38 points to 72.83 points. The highest mean value scores (above 70 points) are observed in three criteria: customer-related results (arithmetic mean of 70.38, mode and median 75); partnerships and resources (arithmetic mean 71.47 mode and median 75), processes, products and services (arithmetic mean 72.83, mode and median 75).

Two of these criteria (customer-related outcomes, partnerships and resources) are part of the Opportunities (Approach) model and one (customer-related outcomes) is part of Results section. This points to the interdependence of the model's criteria, the lower the criteria for the Approach Criterion, the lower the indicators of the Results criteria. The main statistical indicators for assessment of the implementation of the European Business Excellence model criteria for large enterprises and small and medium-sized enterprises are reflected below in Table 1.

Table 1

Main statistic indicators of assessment of European Business excellence model criteria implementation in large enterprises and SMEs (n=293)

Criteria	Small and medium enterprises				Large enterprises			
	Arithmetic mean	Median	Mode	Standard deviation	Arithmetic means	Median	Mode	Standard deviation
1. Leadership	63.41*	75.00	75	20.948	68.15*	75.00	75	24.864
2. Strategy	64.81**	75.00	75	22.069	75.40**	75.00	100	26.198
3. People	63.36**	50.00	50	22.794	72.58**	75.00	75	22.042
4. Partnership & resources	72.45*	75.00	75	23.740	81.05*	75.00	100	22.031
5. Processes, products & services	71.20	75.00	75	21.077	75.81	75.00	75	21.694
6. People results	68.93	75.00	75	16.735	72.58	75.00	75	19.580
7. People results	67.35	75.00	75	20.343	68.15	75.00	75	27.225
8. Society results	64.44**	75.00	75	24.211	76.61**	75.00	75	23.025
9. Business results	63.47**	75.00	75	23.242	75.41**	75.00	75	17.965

* $p < 0.005$; ** $p < 0.001$

Source: author's calculations based on survey data

In all criteria of the EFQM business excellence model, large companies have higher evaluations in comparison to small and medium-sized enterprises. The greatest difference is observed in performance of the 8th criterion (society-related results), the arithmetic mean for the small and medium-sized enterprises is 64.44, the mode 75 and the median 75.00; while the arithmetic mean for the large enterprises is 76.61, the mode 75 and the median 75.00. This may indicate that, in the case of large companies, bigger attention is paid to company's image indicators for the particular criterion; therefore, the performance is higher in comparison to the SME.

The second largest difference between the benchmarking level for SMEs and large enterprises is the 9th criterion (key performance results), with arithmetic mean of 63.47 for the small and medium-sized enterprises, the mode 75 and the median 75.00, meanwhile for the large enterprises the arithmetic mean is 75.41, mode 75 and median 75.00. The smallest difference is observed in the assessment of the 7th criterion (staff-related results). The arithmetic mean value for small and medium-sized enterprises is 67.35, mode 75 and median 75.00, meanwhile for large enterprises

the arithmetic mean value is 68.15, mode 75 and median 75.00, respectively. The author concluded that the overall assessment for SMEs and large enterprises varies, SMEs show lower results, which can be caused by various problems associated with SME operations, including limited resources. The arithmetic mean is higher for large enterprises compared to SMEs but standard deviation and variation are generally smaller for SMEs compared to large enterprises. The performance level of the EFQM Business excellence model can depend on understanding of the quality of business executives of the enterprises and SMEs. Depending on the strategy, enterprises can achieve high levels of excellence not in all criteria but in some – especially important for them.

Values of European Excellence Model criteria implementation in the company according to Spearman's rank correlation coefficients are presented below in Table 2.

Table 2

Values of European Excellence Model Criteria implementation in the enterprise according to Spearman's rank correlation coefficients

No.	Criteria	Leadership	Strategy	People	Partnership & resources	Processes, products & services	Customer results	People results	Society results	Business results
1	Leadership	1								
2	Strategy	,333**	1							
3	People	,378**	,375**	1						
4	Partnership & resources	,254**	,343**	,308**	1					
5	Processes, products & services	,335**	,375**	,373**	,328**	1				
6	Customer results	,265**	,349**	,322**	,257**	,352**	1			
7	People results	,310**	,286**	,414**	,263**	,356**	,366**	1		
8	Society results	,312**	,414**	,334**	,297**	,415**	,380**	,404**	1	
9	Business results	,382**	,418**	,460**	,317**	,437**	,383**	,396**	,505**	1

Source: author's calculations based on survey data

The author concluded that were weak, positive, statistically significant correlations between the performance criteria of the EFQM model in the enterprise such as "strategy", "people ", partnership and resources", "processes, products and services" etc. Except two criteria - "main operating results" and "company-related results ", as evidenced by the Spearman's rank correlation coefficient values ($0.254 \geq r \leq 0.460$, $p < 0.001$). The interconnection between the criteria "main operating results" and "society-related results" was moderate positive with relevant value of the Spearman's rank correlation coefficient ($r = 0,505$, $p < 0,001$).

The EFQM model the mean to develop a systemic approach that balances social and technical best practices to improve results and a system overall. The author thinks that an equivalent effort in improving leadership and systems may lead to greater effects in large enterprises according their opportunities.

Conclusions, proposals, recommendations

- 1) The research confirms the author's hypothesis that the performance level of the EFQM criteria depends on the size of the enterprises.
- 2) The statistical indicators of the evaluation of EFQM model criteria implementation show that the highest mean value (above 70) is evident in three criteria: customer-related results,

partnerships and resources, processes, products, and services. Two of these criteria (customer-related results, partnerships, and resources) are part of the Opportunities (Approach) section and one (customer-related results) is in the part of the Results indicating the interdependence of the model's criteria.

- 3) The overall assessment for SMEs and large enterprises varies, SMEs show lower results, which can be caused by various problems associated with SME operations, including limited resources. Thus, the performance level of the EFQM model differs.
- 4) The performance level of the EFQM Business excellence model can depend size and structure of enterprises, on understanding of the management's perception of quality. The EFQM model criteria can achieve a high of excellence in some, but not all criteria. The choice of practices to use should be aligned to the organization's strategy as well as its needs.
- 5) SMEs can take advantage of their relative strengths, especially regarding flexibility, to comply with the criteria of the EFQM model. The flexibility of SMEs can compensate the lack of resources to ensure benchmarking or monitoring.
- 6) The values of European Excellence Model Criteria implementation in the enterprise according to Spearman's rank correlation coefficients shows weak, positive statistically significant correlations between the evaluation of the EFQM model implementation criteria in the company (except two criteria - "main operating results" and "company-related results"), as evidenced by the Spearman's rank correlation coefficient values ($0.254 \geq r \leq 0.460$, $p < 0.001$). The interconnection between the criteria "main operating results" and "society-related results" was moderate positive, the value of Spearman's rank correlation coefficient was statistically significant ($r = 0.505$, $p < 0.001$).
- 7) Due to relatively low ratings of SMEs in performance of the "leadership/management" criterion of EFQM model compared with large enterprises, it is advisable to evaluate periodically (at least once a year) the performance of the managers of the company (communication with employees, change management, etc.) and take to measures to resolve the identified problem. EFQM business excellence model entails that organizations need an effective leadership in order to set an appropriate climate to achieve excellence.
- 8) Considering the low results of the large enterprises in performance of the 7th criterion "staff-related results" of EFQM business excellence model, it is advisable to evaluate at least on annual basis the staff satisfaction survey results, which would help to understand the situation in the company.
- 9) The Latvian National Quality Association should inform entrepreneurs about the possibilities to apply the EFQM model, for example, model as self-assessment tool, what can help to identify the company's strengths, which form the company's competitive advantages and areas to be improved in order to make the company competitive, because there is insufficient information available especially about EFQM model.

Bibliography

1. Ahire, S.L. and Golhar, D.Y. (1996). Quality Management in Large vs Small Firms, *Journal of Small Business Management*, Vol. 34 No. 2, pp. 1-13.
2. Angell, L.C., Corbett, L.M. (2009). The Quest for Business Excellence: Evidence from New Zealand's Award Winners, *International Journal of Operations & Production Management*, Volume 29 Issue. 2, pp. 170-199.
3. Asgharizadeh, E., Safari, H., Abdollahi, B. (2011). Canonical Correlation Analysis between Results in EFQM Model and Productivity: a Case Study in TAVANIR Company in Iran, *European Journal of Scientific Research*, Volume 58, Issue 4, p. 465

4. Calvo-Mora, A., Picon-Berjoto, A., Ruiz-Moreno, C. and Cauzo-Bottala, L. (2015). Contextual and Mediation Analysis between TQM Critical Factors and Organisational Results in the EFQM Excellence Model Framework, *International Journal of Production Research*, Volume 53, Issue. 7, pp. 2186-2201.
5. Dean, J.W. and Bowen, D.E. (1994). Management Theory and Total Quality: Improving Research and Practice Through Theory Development. *Academy of Management Review*, Volume 19, Issue. 3, pp. 392-418.
6. Escrig, Ana B., de Menezes, L., M. (2016). What is the Effect of Size on the Use of the EFQM Excellence Model? *International Journal of Operations & Production Management*, Volume 36, Issue 12 pp. 1800 – 1820
7. European Foundation for Quality Management. (2013) Fundamental Concepts. Retrieved: <http://www.efqm.org/efqm-model/fundamental-concepts>. Access: 16.12.2017
8. European Foundation for Quality Management. (2016) RADAR. Retrieved: <http://www.efqm.org/en/?TabId=171>. Access: 19.12.2017
9. Evans, J.R., Ford, M.W., Masterson, S.S. & Hertz, H.S. (2012). Beyond Performance Excellence: Research Insights from Baldrige Recipient Feedback. *Total Quality Management & Business Excellence*. Volume 23, Issue 5, pp. 89-506.
10. Gómez, J., Martínez, M. & Martínez, A.R. (2011). A Critical Evaluation of the EFQM model", *International Journal of Quality & Reliability Management*, Vol. 28 No. 5, pp. 484-502.
11. Gustafsson, A., Nilsson, L. & Johnson, M.D. (2003). The Role of Quality Practices in Service Organizations, *International Journal of Service Industry Management*, Vol. 14 No. 2, pp. 232-244.
12. Haar, J.M. & Spell, C.S. (2008). Predicting Total Quality Management Adoption in New Zealand: The Moderating Effect of Organisational Size. *Journal of Enterprise Information Management*, Volume 21, Issue 2, pp. 162-178.
13. Hakes, C. (2007). *The EFQM Excellence Model for Assessing Organizational Performance: a Management Guide*, Van Haren Publishing, pp. 2-6
14. Hendricks, K.B. and Singhal, V.R. (2001). Firm Characteristics, Total Quality Management, and Financial Performance, *Journal of Operations Management*, Volume 19, Issue 3, pp. 269-280.
15. Hewitt, S. (2007). Business Excellence: Does it Work for Small Companies? *The TQM Magazine*, Volume 9, Issue 1, pp. 74-76
16. Jayaram, J., Ahire, S.L. and Dreyfus, P. (2010). Contingency Relationships of Firm Size, TQM Duration, Unionization, and Industry Context on TQM Implementation-a Focus on Total Effects. *Journal of Operations Management*, Volume 28, Issue. 4, pp. 345-356.
17. Kumar, M. & Antony, J. (2008). Comparing the Quality Management Practices in UK SMEs. *Industrial Management & Data Systems*, Volume 108, Issue. 9, pp. 1153-1160.
18. Latvijas Kvalitātes asociācija. (2014) *Eiropas Izcilības modelis*. Retrieved: http://www.lka.lv/index.php?module=Articles&cat_id=41 Access: 27.12.2017
19. Latvijas Statistikas Pārvaldes datu bāze. (2016). Tirgus sektora ekonomiski aktīvi uzņēmumi sadalījumā pēc lieluma grupām. Retrieved: http://data.csb.gov.lv/pxweb/lv/uzreg/uzreg__ikgad__01_skaitis/SR00431.px/table/tableViewLayout2/?rxid=073f5e9f Access: 08.03.2018
20. Lee, G.L. and Oakes, I. (1995). The 'pros' and 'cons' of total quality management for smaller companies in manufacturing: some experiences down the supply chain. *Total Quality Management*, Volume 6, Issue. 4, pp. 413-420.
21. Llusar, B. J., Escrig –Tena, A.B., Roca –Puig, V., Beltrán –Martín, I. (2009) An Empirical Assessment of the EFQM Excellence Model: Evaluation as a TQM Framework Relative to the MBNQA Model, *Journal of Operations Management*, Volume 27, Issue 1, pp. 5-7
22. Porter, L. and Tanner, S. (2001). Assessing Business Excellence. A Guide to Business Excellence and Self-Assessment, Elsevier Butterworth-Heinemann, Oxford.
23. Roca, V., Escrig, A.B., Bou, J.C. and Beltrán, I. (2006). A Systemic and Contingent View of the Basic Elements of Quality Management. *Total Quality Management and Business Excellence*, Vol. 17 No. 9, pp. 1111-1127.
24. Rusjan, B. (2005). Usefulness of the EFQM Excellence Model: Theoretical Explanation of Some Conceptual and Methodological Issues. *Total Quality Management*, Volume, 16 Issue. 6, pp. 363-378
25. Sampaio P., Saraiva P., Monteiro A. (2012) *A Comparison and Usage Overview of Business Excellence Models*. *The TQM Journal*, Volume 24, Issue 2, p. 183
26. Storey, D.J., Saridakis, G., Sen-Gupta, S., Edwards, P. K. and Blackburn, R.A. (2010). Linking HR Formality with Employee Job Quality: The Role of Firm and Workplace Size, *Human Resource Management*. Volume 49, Issue. 2, pp. 305-329
27. Sturkenboom, J., Van Der Wiele, T. & Brown, A. (2001). An Action-Oriented Approach to Quality Management Self-assessment in Small and Medium-Sized Enterprises. *Total Quality Management*, Volume 12, Issue. 2, pp. 231-244.
28. Suckling S., Jacobs B. (2007). Assessing Customer Focus Using the EFQM Excellence Model: a Local Government Case. *The TQM Magazine*, Volume 19, Issue 4, 2007, pp. 365-371
29. Sun, H. & Cheng, T.K. (2002). Comparing Reasons, Practices and Effects of ISO 9000 Certification and TQM Implementation in Norwegian SMEs and Large Firms. *International Small Business Journal*, Volume 20, Issue. 4, pp. 421-442.

30. Talwar, B. (2011). Business Excellence Models and the Path Ahead, *The TQM Journal*, Volume 23, Issue 1, pp. 21-31
31. Temtime, Z.T. (2003). The Moderating Impacts of Business Planning and Firm Size on Total Quality Management Practices. *The TQM Magazine*, Volume 15, Issue 1, pp. 52-60.
32. Watson, J.G. & Korukonda, A.R. (1995). The Total Quality Management Jungle: a Dialectical Analysis. *International Journal of Quality & Reliability Management*, Volume 12 Issue. 9, pp. 100-109.
33. Wilkes, N. and Dale, B. (1998). Attitudes to Self-assessment and Quality Awards: a Study in Small and Medium-Sized Companies. *Total Quality Management*, Volume 9, Issue 8, pp. 731-739.
34. Williams, R., Bertsch, B., Van der Wiele, A., Van Iwaarden, J. and Dale, B. (2006). Self-assessment Against Business Excellence Models: a Critique and Perspective", *Total Quality Management and Business Excellence*, Volume 17, Issue 10, pp. 1287-1295.
35. Zhao, X., Yeung, A.C. and Lee, T.S. (2004). Quality Management and Organizational Context in Selected Service Industries of China, *Journal of Operations Management*, Volume 22, Issue. 6, pp. 575-587