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ECONOMIC SCIENCE FOR RURAL DEVELOPMENT

Proceedings of the International Scientific Conference

No. 31

Integrated and Sustainable Regional Development

Nordic Association of Agricultural Scientists

"ECONOMIC SCIENCE FOR RURAL DEVELOPMENT"

Proceedings of the
International Scientific Conference

No. 31
Integrated and Sustainable Regional Development

Jelgava
2013

TIME SCHEDULE OF THE CONFERENCE

Preparation – September, 2012 – April 20, 2013
Process – April 25-26, 2013

Latvia University of Agriculture, Latvia, 2013
Aleksandras Stulginskis University, Lithuania, 2013
Banat University of Agricultural Sciences and Veterinary Medicine Timisoara, Romania, 2013
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Every article included into the Proceedings was subjected to a scientific, including international review.

All reviewers were anonymous for the authors of the articles.

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Foreword

Every year the Faculty of Economics, Latvia University of Agriculture holds the international scientific conference "Economic Science for Rural Development" and publishes internationally reviewed papers of scientific researches, which are presented at the conference.
This year researchers from Europe and Asia representing not only the science of economics in the diversity of its sub-branches have contributed to the conference; they have expanded their studies engaging colleagues from social and other sciences, thus confirming inter-disciplinary and multi-dimensional development of the contemporary science. The conference is dedicated to topical themes of rural development; hence, the research results are published in three successive volumes (No. 30, 31 and 32). Our first volume of scientific conference proceedings was published in 2000.
Professors, doctors of science, associate professors, assistant professors, PhD students, and other researchers from the following higher education, research institutions and enterprises participate at the International Scientific Conference held on April 25-26, 2013 and present their results of scientific research:

1. Latvia University of Agriculture, Latvia
2. Aleksandras Stulginskis University, Lithuania
3. BA School of Business and Finance, Latvia
4. Baltic Psychology and Management University College, Latvia
5. Banat University of Agricultural Sciences and Veterinary Medicine Timisoara, Romania
6. Bremen University of Applied Sciences, Germany
7. Daugavpils University, Latvia
8. Fulda University of Applied Sciences, Germany
9. Institute of Agricultural Economics and Information, the Czech Republic
10. Kaunas University of Technology, Lithuania
11. Khyber Pakhtunkhwa Agricultural University, Peshawar, Pakistan
12. Klaipeda University, Lithuania
13. "Latvenergo" JSC, Latvia
14. Latvian Rural Advisory and Training Centre, Latvia
15. Latvian State Institute of Agrarian Economics, Latvia
16. Lithuanian Institute of Agrarian Economics, Lithuania
17. Mykolas Romeris University, Lithuania
18. Pope John Paul II State School of Higher Education in Biala Podlaska, Poland
19. Poznan University of Economics, Poland
20. Poznan University of Life Sciences, Poland
21. Professional Association of Project Managers, Latvia
22. Rezekne Higher Education Institution, Latvia
23. Riga International School of Economics and Business Administration, Latvia
24. Riga Teacher Training and Educational Management Academy, Latvia
25. Riga Technical University, Latvia
26. Seinajoki University of Applied Sciences, Finland
27. Siauliai University, Lithuania
28. Slovak University of Agriculture in Nitra, Slovakia
29. State Regional Development Agency, Latvia
30. Szent Istvan University, Hungary
31. Latvian Rural Advisory and Training Centre, Latvia
32. Turiba University, Latvia
33. University of Latvia, Latvia
34. University College of Culture and Economics, Latvia
35. University of Agriculture in Krakow, Poland
36. University of Bremen, Germany

37. University of Economics in Prague, the Czech Republic
38. University of Helsinki, Finland
39. University of Social Science, Poland
40. University of Szczecin, Poland
41. University of Zielona Gora, Poland
42. Ventspils University College, Latvia
43. "Vides Centrs" Ltd, Latvia
44. Warsaw University of Life Sciences, Poland
45. West Pomeranian University of Technology in Szczecin, Poland
46. Wroclaw University of Technology, Poland

The following topical themes have been chosen for the conference:
— Production and Cooperation in Agriculture
— Integrated and Sustainable Regional Development
— Rural Development and Entrepreneurship
— Marketing and Sustainable Consumption
— Finance and Taxes
— Home Economics

The comprehensive reviewing of submitted scientific articles has been performed on international and inter-university level to ensure that only high-level scientific and methodological research results, meeting the requirements of international standards, are presented at the conference. All scientific articles are in English. 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 the authors of the articles. 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. Altogether, 193 applications were received, 144 articles were submitted, and 113 articles were confirmed for publication.

All the papers of the international scientific conference "Economic Science for Rural Development" were arranged into the three following thematic volumes:

No. 30 Production and Cooperation in Agriculture
Finance and Taxes

No. 31 Integrated and Sustainable Regional Development

No. 32 Rural Development and Entrepreneurship
Marketing and Sustainable Consumption

The publishing of the Proceedings before the conference will promote exchange of opinions, discussions, and collaboration of economic scientists on the international level. The research results included into the Proceedings are available worldwide to any interested person.

The abstracts of the conference proceedings provided in English are submitted to the international databases:

AGRIS – International Information System for the Agricultural Sciences and Technology set up by the Food and Agriculture Organisation of the United Nations (FAO UN) (www.fao.org/agris/), and selected papers are submitted to especially comprehensive scholarly, multidisciplinary databases containing full research texts:

— (EBSCOHost Academic Search Complete) and
— CABI PUBLISHING databases: (http://search.ebscohost.com/login.aspx?authtype=ip,uid&profile=ehost&defaultdb=lbh as well as
— CAB ABSTRACTS (CABA) comprehensive bibliographic database.

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
Dr. oec. **Aija Eglite**
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Content

Integrated and Sustainable Regional Development

"ECONOMIC SCIENCE FOR RURAL DEVELOPMENT"

Proceedings of the
International Scientific Conference

INTEGRATED AND SUSTAINABLE REGIONAL DEVELOPMENT

FOOD CRISIS VERSUS THREATS TO THE WORLD'S SOCIAL AND ECONOMIC STABILITY

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University of Economics Poznan, Poland

Abstract. The paper *Food Crisis versus Threats to the World's Social and Economic Stability* concerns the issues of rural and food economy. The problem is examined on three fields. Firstly, it describes reasons for the food crisis. Secondly, it indicates how the price growth and limited access to food may contribute to social destabilisation, not only on the regional scale. Thirdly, it describes the latest mechanisms established by international institutions in order to counteract social and economic crises caused by the increase of food prices and to lower the risk of protests and social unrest. In the paper, the author states that food crisis as well as rebellion and armed conflicts contribute to the disruption of social order. The paper points out how the scientific methods help predict these events. The article uses the qualitative analysis, descriptive analysis, and the method of historical reconstruction.
Key words: food crisis, world's stability.

Introduction

Social stability understood as maintaining a social order within a definite community the society of a particular country or, lastly, within the global community, is an autotelic value, i.e. a value that cannot be overestimated. The statement that social peace expressed by predictability of conditions in which an individual lives and acts, its sense of security, possibility to fulfil its needs, seems to take a central part in the hierarchy of values. Realisation of these values is intrinsically good, though very often scarce. Disturbances of social order in different societies do not only affect themselves but can also translate into a tension increase in neighbouring countries, or encourage unrest in the whole region. In contemporary globalised world, the risk of "spread" of social unrest is especially high due to widening, intensification, acceleration and growing influence of mutual relations on the global scale.

Destabilisation may jeopardise a certain society due to several reasons, both those typically political, connected with armed conflicts or power struggle which may be caused by economic reasons, generating poverty, unemployment or social exclusion, or those connected with social inequity triggering social agitation, including revolutions and social revolt. The items on the list of reasons which may lead to destabilisation are numerous and interconnected, since social unrest is eventually caused by several factors.

The present paper focuses on one of the very socially fragile factors which may adversely affect social peace, i.e. the one connected with food security. Food deficiency has been present in human life for ages in different scopes – the subjective, spatial, and temporal. It has always found an outlet in protests, rebellions, revolutions or armed conflicts, and in the recent years, it has again become subject of the world's major attention.

The aim of the following deliberations is to indicate the threats which a lack of food security may pose to the world's social stability. It concerns not only the so-called fragile populations but it also translates into the situation of communities of well-developed countries.

1. Reasons for the food crisis

Food and Agriculture Organization of the United Nations ensures that even though the world is not in jeopardy of a serious food crisis, there are still numerous alarming occurrences within rural and food economy which may significantly affect the world's stability. For many years, people have been dealing with certain occurrences that have become vividly discernible during the food crisis which has emerged along with the economic crisis. There are a few reasons for unsettling the world's food stability. Both the sources of international organisations (the World Bank, the FAO, humanitarian organisations) and economists' analyses indicate a few structural and short-term reasons.

The structural factors encompass:
- growth of the world population;
- dynamic development of China and India;
- investment negligence in agriculture, especially on the hunger-struck areas;
- exploitation of agricultural areas for biofuel crops;
- global climate changes.

The short-term factors encompass:
- current weather anomalies;
- trade policies of some countries;
- high prices of oil;
- speculation on financial markets with agricultural and food commodities.

Undoubtedly, the dynamics of population growth in the world (in 2011, the number of the world's population exceeded 7 billion) translates into a demand for food (UN, 2011). The problem might deepen, as according to the forecasts of international organisations; the population growth will be significant first and foremost in those regions of the world which already at present suffer serious problems with ensuring access to food.

A growth of global food demand is also a result of the changing consumption pattern typical of the new economic powers such as China and India where the process of the societies getting richer goes along with increased meat consumption. A demand for meat strongly affects the prices of corn which animals are fed

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with. The change of the consumption pattern in China is considerable; an annual growth of pork consumption from 2005 equals 2.2%, beef consumption – 0.7%, and poultry consumption – 4.9% (Agra Europe, 2011). At the same time, people are dealing with insufficient resources of production capital in agriculture. The FAO sources quote that in the recent 20 years the investment in agriculture has fallen dramatically in relation with the 1970s and 1980s. In the last decade, there occurred a slight increase in the pace of capital accumulation in agriculture and just before the crisis it equalled only 0.5% per year. To a significant extent, it is a result of the policy of highly developed countries which leads to a limitation of areas under crop and yield of agricultural produce (FAO, 2011).

Generally, the situation affects food prices which are also a result of the growing biofuel production (mainly, in the USA and the EU), as the high oil prices make their production more profitable. The progressing process of growing plants which are not used as food staple but as energy resource contributes to a limited access to food. The extent of change within crop exploitation is very significant, as, according to the Oxfam, 65% of vegetable oils in Europe and in the USA over a half of the produced maize are intended for energy production. This results in an increase in prices of plants intended as food staple.

The food prices' issue is linked with the global climate changes which make agriculture a highly risky business. This problem will worsen, as, according to climate change specialists, extreme weather – droughts, floods, hurricanes – will adversely affect agriculture in numerous countries which translates into food supply and price volatility. In the long run, "it is estimated that as a result of climate changes and an increased concentration of carbon dioxide in the air, the corn productivity on the global scale will rise by ca. 9%, providing that new areas of land in developed countries are used (otherwise, i.e. if presently exploited grounds were still exploited, there might occur a crop fall by 5%. […] The strongest falls will concern the Northern Africa, where the productivity may decrease by even 80%, and the Southern Africa (over 30%). It will lead to growing disproportions in access to food" (Grzelak, Stepien, 2010).

The effect of these factors has significantly affected the spiking prices of agricultural yield and food products on the world's markets. Starting from 2000, the prices measured by the FAO Food Price Index are constantly growing, beating new records.

To avert global food shortages, the world has to start producing much more and in a more sustainable way. Otherwise, the near future may not only be characterised by a high food price level (and, in consequence, restricted access to food in less developed regions, or in poorer classes of highly-developed countries) but its significant deficiency will expand the hunger and malnutrition-struck areas in the world (at the end of 2011, the number of people without a sufficient access to food rose to over 1 billion people in the world) (UN, 2011). It is especially vivid in some regions of the world which, in the long perspective, have had problems with development, including insufficient food production, conflicts, population growth, and underdevelopment on numerous fields – social, economic and political.

Undoubtedly, the nutrition level of population is linked significantly with the level of wealth. The wealthier is a country/society and the higher GDP per capita, the smaller is the jeopardy of poverty, malnutrition, or even hunger. The countries which have taken the lowest places on the list of the world's social development are especially fragile, because they react strongly to even relatively slight turbulences on the agricultural and food markets. Unfortunately, it confirms the thesis that the world's food situation explicitly reveals deep social inequity which has not been eliminated by globalisation processes.

The issues of food security are among the greatest challenges for developing countries whose inhabitants assign from 50 to 80% of their income to food, whilst in developed countries, the rate equals 18%. High and volatile food prices put the poorest inhabitants of the world at a tremendous risk.

The problem of the unsettled food security should also be discerned in the context of speculation on financial markets. According to numerous sources, shortages on the food market are increasingly drawing attention of great capital funds, and the influence of investors' speculation on the food market and short-term contracts on the food prices was significant in 2010 and 2011 (UN World Economic Situation and Prospects). Investors invested their assets in raw materials, agricultural raw materials included, bringing about spiking prices in a very short time. Financial institutions offer the so-called *agrofunds,* accessible to an average investor which treats investing in food in the same way as *subprime lending.* A suspicion arises that skyrocketing food prices are a result of intentional spreading panic in order to create an impression of an inevitable food disaster and, in consequence, use the panic to speculative investment strategies. It has its explicit economic consequences, as the price growth impairs economic development, and more expensive raw materials become a hampering factor. The situation does not benefit the global economy contending with deep economic problems. Fluctuating prices may adversely affect the agricultural sector and, in consequence, influence the world's food security. It regards not only a threat for consumers but also for producers, as price volatility makes it difficult for farmers to plan production and sales, or import of food, and it is worth adding that the price growth does not unambiguously translate into the producers' higher income. The EU experts claim that the rate in the supply chain in the farmers' income has fallen significantly, whilst the profits of food processors and retailers are constantly growing.

2. Food versus threat to social stability

According to U. Swierczynska, some experts on food security maintain that the situation on the world food markets is serious. "When a population experiences a sudden threat to its existence, violence and protests are a very probable reaction. In countries where the institutions and trust in authorities is weakened, e.g., after finished conflicts or wars, such an anxiety may easily spread, and eventually may jeopardise the region's stability. Food crises known so far in the history of humanity have usually had local character and emerged as a result of natural disasters or armed conflicts. The situation today differs completely from the previous

ones, first and foremost because of the global character of the present crisis which is not triggered by one but a whole range of factors (Swierczynska, 2008). There is no doubt that contemporary food security is not strictly an economic problem or a sensitive social issue but it is also a serious political problem. In the last few years, namely the problem of spiking food prices has led to important social unrest.

The first violent wave of protests emerged in the period between February 2007 and May 2008 in 30 countries of the world. The most acute problems took place on Haiti, in Cameroon, Egypt, Bangladesh, Burkina Faso, Ivory Coast, Guinea, India, Indonesia, Mauritania, Mexico, Morocco, Mozambique, Senegal, and Uzbekistan where there were some fatalities among the protesters. The protests against the high food prices not only triggered the social unrest in those countries but were also reflected in the economy (closed stock markets, e.g., in Egypt, disturbances in foreign trade etc.).

The background of the second wave of social protests and armed conflicts, called "the Arab Spring" or "the Arab Awakening" (from 17 December 2010) was the citizens' dissatisfaction with living conditions, deepening unemployment, political situation – corruption, nepotism in authorities, limitation of civil rights by autocratic authority of the state, and also the growing prices of food.

The influence of the growth in food prices on the protests in numerous Arab countries is confirmed by the analyses carried out by a scientist team from the New England Complex Systems Institute (NEWCS) in Cambridge under Marco Lagi's management. The team presented a study of economic reasons underlying the revolution in the North African countries in 2010-2011. The scientists used in their analyses the index of fluctuation of agricultural and food produces and discovered that the price growth preceded social unrest, acting as a catalyst for moods in those communities. Thanks to mathematical models, the researchers pointed a specific food price threshold above which the threat of next riots become likely. The analysis of price growth dynamics was linked with other reasons which also point to the issue of speculation with food commodities and excessive use of plants to biofuel production. The crucial position of this issue is not to be underestimated, as hunger and malnutrition of millions of people are at stake. What we are dealing with is both a humanitarian and political problem. The areas jeopardised by hunger or struck by it pose a potential threat due to possible uncontrolled migration of people and conflicts resulting in warfare.

The conducted study is a very important warning to the world, especially to its policy-makers. It points out that certain steps to restrict the price growth of agricultural produce may essentially contribute to lessening the tension in the world. The problem does not exclusively concern undeveloped countries but it is also beginning to affect highly-developed regions. Only recently ca. 33 million people in Europe were described as exposed to risk of undernutrition (Ljungqvist, Man, 2009), which is both a social and economic problem, as it considerably raises health care costs connected with hospitalisation of people suffering from undernourishment-related illnesses. The costs are estimated at ca. EUR 120 billion per annum (Ljungqvist, Man, 2009). At present, the number of people, whose basic existence is endangered, is growing due to the spreading economic crisis. What we are experiencing now is a wave of violent protests throughout the whole European Union. Demonstrations, strikes and pickets are held in protest against the policy of social cuts, dictated by the crisis. This is an answer to the lowering standard of life among many Europeans, high unemployment, and very often inability to fulfil basic needs. The latest wave of protests, summoned by the European Trade Union Confederation (ETUC) in November 2012, demonstrates expressly that even though Europe can ensure food security because of its agricultural policy, the worsening economic situation of numerous families may lead to a decreased access to basic commodities, food included. Therefore, increasing food prices will also in this area be a central issue to destroy a sense of security. This, in turn, may trigger unrest and social conflicts.

3. Food security – mechanisms of averting social and economic crises

Diminishing jeopardies of outbursts of social unrest are becoming a challenge for global politics. It is not about simple restriction of economic activity concerning the agricultural and food markets but about establishing mechanisms of sustainable economy which would limit adverse consequences of the above mentioned factors. Among the initiatives, which aim at reducing food prices, is certainly the establishment of a public, global supervising system ensuring access to reliable and up-to-date information on supplies of food commodities, possibility of export and demand for import, and information concerning financial transactions which should have a stabilising effect on the market. The system, which is originally designed to counteract speculation on agricultural markets, was established by the G-20. AMIS (*Agricultural Market Information System*), which encompass such international organisations as FAO, IFAD, OECD, UNCTAD, WFP, the World Bank and WTO, is to systematically gather, analyse and spread information on the present and forecasted situation on food markets and changes in agricultural policy. Its objective is an improved transparency of the world food market which is supposed to limit mechanisms causing excessive volatility of prices and speculative actions. This is an effect of the recently emerged belief that the action, which had brought about a disaster on financial markets may similarly cause a disaster on the markets of agricultural raw materials. The system should facilitate monitoring of the process of establishing prices of agricultural produce and commodities in the world. The Rapid Response Forum (RRF) is also supposed to serve this purpose. Thanks to the Forum, international community has a chance to react promptly to alarming situations on the world's agricultural and food markets. A justified question arises, though, whether gathering all information into a coherent system, enabling a faster reaction to the price growth of agricultural raw materials, is a sufficient instrument to reduce unfavourable occurrences. Undoubtedly, global reforms are necessary to weaken the unfavourable occurrences in this respect. Therefore, a proposal of the European Commission of October 2012 is a worth mentioning occurrence. It actually acknowledges

that the current policy of supporting biofuels has an adverse influence not only on natural environment but also on food security. A consequence of change within this way of thinking is a proposal to restrict significantly the biofuel production.

Conclusions

The analysis shows that

1. Hunger or limited access to food has always been a reason for great conflicts, revolutions, or wars in the world's history.
2. Contemporary world has gained numerous ways to ensure people's food security, avoiding violent reactions of communities who fight for their basic existence.
3. Food is both a humanitarian, social, economic, and political problem as well as an important instrument, allowing to maintain a social order.
4. Sustainable economy, meaning an agreement on international level, should aim at limiting the factors, which are presently identified as responsible for growth in food prices. It should also dynamise joint preventive actions against food crises in different parts of the world which, as a result of growing economic problems of highly developed countries, are significantly weakened.
5. Scientific methods may be used to predict food crises.

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PROPERTY RIGHTS AND MACROECONOMIC PERFORMANCE IN CENTRAL AND EASTERN EUROPEAN EU MEMBER STATES

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Abstract. Using the database of eight Central and Eastern European transition economies compiled from the World Bank collection of World Development Indicators, the authors examine the relationship between high contract-intensive money as an indicator of contractual and property rights (or a general measure of the quality of governance and institutions) and performance of several macroeconomic indicators (GDP growth, FDI to GDP ratio, employment rate etc.) over the period from 1990 to 2011. The Pearson's correlation coefficients were used to determine the strength of the relationships. Additionally, the authors used multiple and simple regression analyses with CIM being an exploratory variable. The period averages of CIM for individual countries were the highest in Slovenia, whereas the lowest in Latvia and Lithuania. Cross-country dispersion of this ratio has narrowed, especially from 2003 onwards. Overall, our results provide little empirical support for the notion that the better performance of the national economy is strongly related to the better enforcement of property rights. There was a statistically significant positive association between CIM and economic growth rate (Hungary), employment rate (the Czech Republic), FDI (Estonia); household consumption spending (the Czech Republic and Slovenia), new business density (Hungary) and gross fixed capital formation by private sector (the whole group of countries), and negative association with long-term unemployment (Slovakia). The multiple regression results show unexpected negative significant relationship between CIM and economic growth rates in Latvia, Slovakia and in the whole group of the countries.
Key words: contract-intensive money, property rights, economic growth, Central and Eastern Europe
JEL code: E02, K11, E51

Introduction

"The reason why men enter into society, is the preservation of their property; and the end why they choose and authorize a legislative, is, that there may be laws made, and rules set, as guards and fences to the properties of all the members of the society, to limit the power, and moderate the dominion, of every part and member of the society."
John Locke (1764, *§222*)

Mainstream economics used to explain differences in economic performance by physical and/or human capital and technological change as sources of economic growth. Contemporary economists, however, seek the deeper, more fundamental factors that may influence long-term economic growth. It is the New Institutional Economics (NIE) that essentially contributes to explaining economic growth and development by considering not only the standard factors of production but also institutions.

Throughout this study, institutions are understood as formal and informal "rules of the game" (or rules shaping the behaviour of economic agents) and their enforcement characteristics as defined by Douglas C. North (1990). Institutions may have a direct influence on economic outcomes (e.g. through affecting transaction costs) or indirect influence (e.g. through incentives to invest in physical or human capital).

According to Andrzej Wojtyna (2002), who draws on the findings of worldwide studies, the prevailing attention in the growth literature has been recently placed on institutions and institutional framework playing the key role in this respect.

Experience from, for example, transition economies suggests that without efficient institutions the standard production factors are not capable of delivering rapid growth (Eicher T.S. et al., 2006). Many authors (e.g. North D.C., 1990; Economides G., Egger P.H., 2009; Nooruddin I., 2010) view institutions as a primary determinant of economic performance and argue that good national economic performance and overall well-being is a consequence of having the right configuration of economic and political institutions. There is also a growing number of empirical institutional studies that examine the link between institutions and economic performance (Efendic A., Pugh G., Adnett N., 2011).

By investigating the role that property rights play in economic performance, this study will provide further insight into an existing field of research on institutions and development.

Following this introduction, the paper is structured as follows. The next section approaches the main concepts of property rights as well as perspectives about their economic role discussed in the relevant literature. The third section consists of description of data sources, variables and methods applied. The third section offers own research results. The final section consists of conclusions and recommendations.

Institution of property rights

The phrase "property right" refers to an owner's right to use a good or asset for consumption and/or income

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generation. It can also include the right to transfer it to another party, in the form of a sale, gift or bequest as well as the right to contract with other parties by renting or mortgaging a good or asset, or by allowing other parties to use it (Alchian A.A., Demsetz H., 1972, Besley T., Ghatak M., 2010).

According to Douglas C. North (1990), property rights are an important element of the institutional structure of an economy since, like other institutions, they structure incentives in human exchange, whether economic, social or political. Generally, economic rules (institutions) define property rights (North D.C., 1990). The security of property rights and the effective enforceability of contracts are two main conditions necessary for market economy. Strong property rights regime lays the foundation for growth, freedom and overall well-being of nations (Sullivan J.D., Rogers J., Bettcher K.E., 2007). In the economic literature, property rights enforcement is not merely considered a key driving force behind economy's performance but also a crucial attribute of state (government) capacity to perform its basic tasks.

Various alternative measures of property rights (mostly of subjective nature) are used as institutional variables in the empirical research (e.g. Property rights component of the Heritage Foundation's Index of Economic Freedom, Legal system and property rights sub-index of the Fraser's Economic Freedom of the World Index, measures of corruption that reflects an expropriation of private property by the state, etc.).

In the study, the authors consider single measure of institutional quality – Contract-intensive money (CIM) which is recognized as "an objective measure of the enforceability of contracts and the security of property rights" (Clague C., Knack S., Keefer P., Olson M., 1999). CIM measures the extent to which property rights in any country are sufficiently secure that individuals are willing to hold liquid assets via financial intermediaries. Christopher Clague et al. (1997) are among the first researchers that employed CIM to measure the effect of institutional quality on investments and per capita income growth in a cross-country regression analysis. These authors documented a strong positive cross-country relationship between those variables.

Contract-intensive money is the ratio of demand as well as the time savings and foreign currency deposits of resident sectors other than the central government to broad money, and is defined as: (M2−C)/M2, where M2 is a broad definition of the money supply and C is the amount of currency held outside banks. This variable can be also defined as the ratio of non-currency money to the total money supply. This ratio compares financial assets that depend on functioning formal contract enforcement (i.e. by third parties) to financial assets that do not depend on formal contract enforcement.

Highly contract-intensive money is the ratio of the time, savings and foreign currency deposits of resident sectors other than the central government to broad money, defined as (M2−M1)/M2, where M1 is narrow definition of the money supply. This measure reflects the propensity to invest in financial assets. Highly contract-intensive sectors include banks, insurance, trading and other service companies.

The rationale behind using CIM as a proxy for property rights is the conviction that the same contract enforcement and property rights institutions that support non-self-enforcing transactions have also an impact on the forms of assets held by the population. In countries with institutional weaknesses, where uneven legal and political environment makes it sensible to hide one's assets (including money) and economic activities from the government, people will be more willing to use the cash rather than other payment methods in order to carry out their transactions. This behaviour allows people avoiding risks of assets seizure and expropriation as well as taxing by the government. Additionally, if formal contracts cannot be effectively enforced by a court, or are avoided because they leave written evidence of the transactions that one wishes to conceal from the authorities, then cash becomes more attractive when compared to less liquid money since it completes the concealment of the transaction. Households, farmers and firms may also prefer to maintain their assets in the form of cash (and eventually demand deposits) rather than time deposits and other financial claims because they lack confidence in the integrity, safety and soundness of banks and other issuers of financial claims, or because they doubt the government's competence in the prudential regulation of financial entities (Clague C. et al., 1997).

Conversely, in countries with more secure property rights and effective contract enforcement, people have little motive either for keeping cash or using it in large transactions. In such a case, "they prefer that transactions be formally recorded in case there is a dispute to be resolved, and they are relieved of the inconvenience and danger of dealing in large amounts of currency" (Clague C. et al., 1997). When people believe that enforcement of financial contracts is credible and sufficient, they will be more disposed to allowing other parties to hold their funds in exchange for some compensation (Clague C. et al., 1999).

CIM ratio is also used by researchers as a proxy for investments in the contract intensive sectors – investments that reflect the legitimacy of the institutions that encourage impersonal exchange (Compton R.A., Giedeman D.C. and Johnson N.D., 2010). Additionally, CIM reflects the trust in government, or "how much faith investors have in the government's ability and willingness to enforce financial contracts, and to refrain from expropriating financial assets (Knack S., Kugler M. and Manning N., 2003).

Methodology/approach of own empirical research

The empirical research is descriptive and quantitative in nature and is based on the New Institutional Economics theory. Through econometric analysis, the study seeks to identify the association between institutions and economic growth and other variables describing national economies. The authors expect to find a positive correlation between country's property rights quality and several macroeconomic metrics, including GDP growth rate.

Institutional studies have given rise to a question: How to measure or proxy for institutions? Different institutional proxies in empirical research suggest that there is no single variable perfectly representing institutions. The institutional variable of interest in this

Table 1

Description of variables used in the analysis

Variable acronym	Variable name	Definition	Source
MONY_CN	Money: M1 (current local currency units-LCU)	The sum of currency outside banks and demand deposits other than those of central government.	International Monetary Fund (IMF): International Financial Statistics (IFS) & data files
MQMY_CN	Money and quasi money: M2 (current LCU)	The sum of currency outside banks, demand deposits other than those of the central government, and the time, savings and foreign currency deposits of resident sectors other than the central government. It corresponds to lines 34-35 in the IMF's IFS.	
CIM	Contract-intensive money	(M2– M1)/M2	Authors' own calculation
VA_AGR	Agriculture, value added (% of GDP)	Agriculture includes forestry, hunting, fishing, and cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs.	Economic Policy & Debt: National accounts: Shares of GDP
EMP_TP	Employment to population ratio, 15+, total (%)	The proportion of a country's population that is employed. Ages 15 and older are generally considered the working-age population.	Labour & Social Protection: Economic activity
FRM_BN	Firms using banks to finance investment (% of firms)	The percentage of firms using banks to finance investments.	World Bank (WB), Enterprise Surveys
GDP_ RATE	GDP growth (annual %)	Annual percentage growth rate of GDP at market prices based on constant local currency. GDP is the sum of GVA by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.	World Bank national accounts data, and OECD National Accounts data files
GFCF_PR	Gross fixed capital formation, private sector (% of GDP)	Private investment covers gross outlays by the private sector (including private non-profit agencies) on additions to its fixed domestic assets.	
CONF_ HOUS	Household final consumption expenditure (% of GDP)	The market value of all goods and services purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses, and the expenditures of non-profit institutions serving households.	
VA_IND	Industry, value added (% of GDP)	Industry corresponds to ISIC divisions 10-45. It comprises value added in mining, manufacturing, construction, electricity, water, and gas.	
FDI_NV	Foreign direct investment, net inflows (% of GDP)	The net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.	IMF, IFS and Balance of Payments databases; WB, Global Development Finance, and WB and OECD GDP estimates.
CPTF_PR	Private capital flows, total (% of GDP)	Consist of net FDI and portfolio investment. The FDI is total net: net FDI in the reporting economy from foreign sources less net FDI by the reporting economy to the rest of the world. Portfolio investment excludes liabilities constituting foreign authorities' reserves and covers transactions in equity securities and debt securities.	IMF, Balance of Payments Statistics Yearbook and data files, and WB and OECD GDP estimates.
NBUS_ DNS	New business density (new registrations per 1000 people aged 15-64)	New businesses registered are the number of new limited liability corporations registered in the calendar year.	World Bank's Entrepreneurship Survey and database

Continue to Table 1

SELF_EMP	Self-employed, total (% of total employed)	Workers who hold the type of jobs defined as a "self-employment jobs" (i.e. jobs where the remuneration is directly dependent on the profits derived from the goods and services produced): employers, own-account workers, and members of producers' cooperatives.	International Labour Organization, Key Indicators of the Labour Market database
UEM.TOTL	Unemployment, total (% of total labour force)	The share of the labour force that is without work but available for and seeking employment. Definitions of labour force and unemployment differ by country.	
UEM.LTRM	Long-term unemployment (% of total unemployment)	The number of people with continuous periods of unemployment extending for a year or longer, expressed as a percentage of the total unemployed.	

Source: authors' construction based on the World Bank data

Table 2

Descriptive statistics for CIM in the selected EU countries, 1990-2011

	POL	CZE	HUN	EST	LVA	LTU	SLK	SLV	EU-8
Mean	0.582	0.502	0.576	0.475	0.382	0.389	0.566	0.751	0.532
Standard deviation	0.104	0.134	0.049	0.107	0.072	0.064	0.099	0.133	0.149
Observations	22	17	22	21	19	19	16	21	157

Notes: Poland – POL; the Czech Republic – CZE; Hungary – HUN; Estonia – EST; Latvia – LVA; Lithuania – LTU; Slovakia – SVK; Slovenia – SVN

Source: authors' calculations based on the World Bank data

study is the highly contract-intensive money (denoted in our analysis by CIM) considered as a measure of *de facto* property rights institutions. Highly contract-intensive money has been estimated as (M2– M1)/M2.

The panel data used in this study is drawn from the World Bank World Development Indicators available at: http://data.worldbank.org/data-catalog/world-development-indicators. The data set consists of statistics on the eight Central and Eastern European countries (which joined the EU in 2004) over the period 1990 to 2011. All these are post-socialist transition countries, whose initial conditions were largely comprised of similar institutional formats. Due to the lack of data for the whole period, the authors have analysed shorter time series for some variables and/or countries. The variables used in this analysis are listed and explained in Table 1.

The authors employ simple empirical strategies to analyze this cross-country data set. Since the authors do not attempt to estimate any kind of the causal effects of CIM, they focus rest solely on the associational relationship between this institutional measure and other variables. Therefore, the authors used three empirical strategies: (1) Contract intensive money is one of explanatory variables of economic growth (a multiple regression); (2) The technique of correlation to test the statistical significance of the association between CIM and other variables describing economic performance; (3) Simple bi-variate regressions where two-year lagged CIM is a single explanatory variable. The dependent variables used in single regression analysis may be grouped into two categories: variables related to growth (GDP growth rate), and variables related to other economic performance characteristics.

Research results and discussion

According to the inventors of CIM, its measure captures the quality of the property rights and contract enforcement institutions. Given this, we can expect higher CIM ratios where property rights are stronger and third-party enforcement is more credible and smaller ratios where property rights are less developed and protected, and third-party enforcement is defected. In other words, the higher CIM, contract enforcement and property rights institutions will be judged more positive.

In the period 1990-2011, Slovenia on average displayed the strongest CIM ratio, while Latvia and Lithuania reached its lowest levels. An average ratio for our group of eight transition countries was at 0.53 (Table 2).

The pattern of change observed in Figure 1 indicates a downward trend in the high contract-intensive money ratio in Slovenia and Estonia (1991-2011), Slovakia (1993-2008), the Czech Republic (1993-2009), Poland (1990-2011) and Latvia (1991-2009), and respectively upward trend in Hungary (1990-2011) and Estonia (1991-2011).

Since 1993, the highest historical levels of CIM have occurred in different periods for different countries: in Poland, the Czech Republic, Slovakia and Slovenia during 1997-2001; in Hungary over 1995-1998; in Estonia in 2004 and 2008; in Latvia in 2006-2008; in Lithuania over 2008-2009.

The authors find evidence of the declining cross-country dispersion (sigma-convergence[1]) of CIM ratio between 1993 and 2008 with its coefficients of variation across eight states equal to 0.33 and 0.15 respectively.

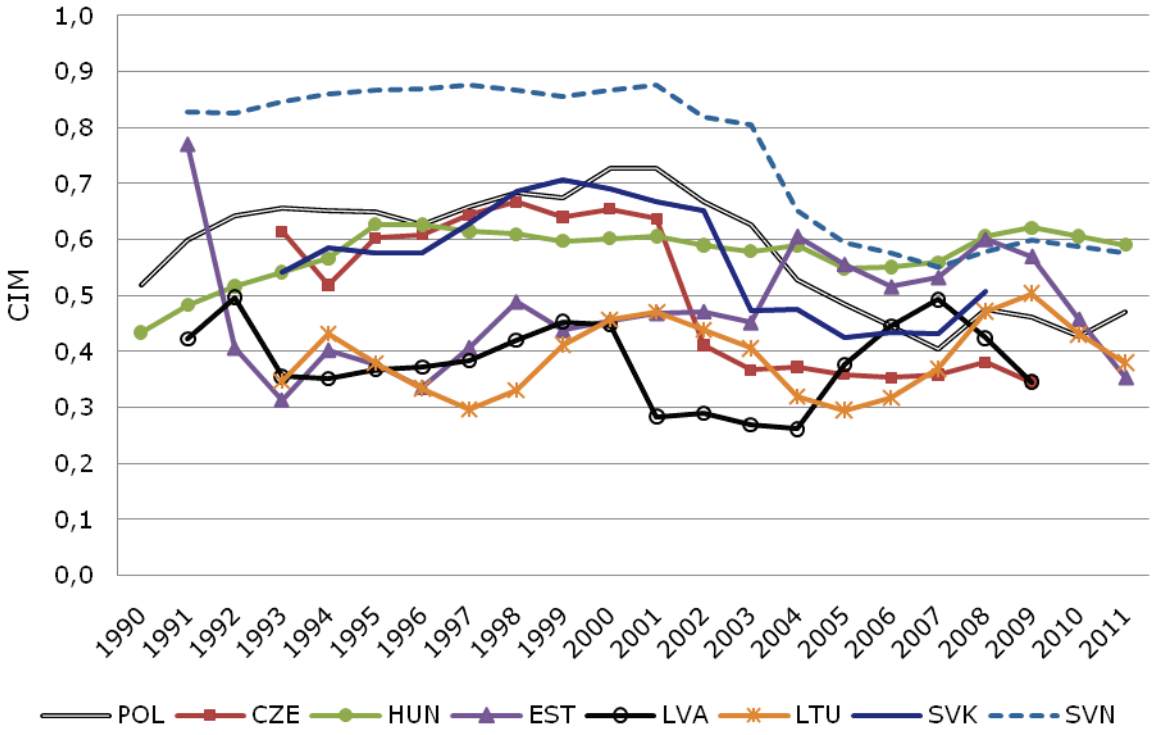

Fig. 1. **CIM vs. time in the selected EU countries, 1990-2011**

Table 3

Multivariate regression estimates for eight European Union Member States, 1990-2011

Independent variables	Dependent variable: GDP growth rate (GDP_RATE)								
	POL	CZE	HUN	EST	LVA	LTU	SVK	SVN	EU-8
	Coefficients								
CONSTANT	-149.1	-57.2	82.3	-99.2	131.0	205.3 *	-15.2	46.2	-0.43
EMP_TP	0.98	1.61	-0.92	0.62	-0.10	1.02	0.88 *	-0.17	0.11
FDI_NV	1.71 *	0.38	0.00	0.65	1.70	-0.74	0.45 **	0.49	0.04
CONF_HOUS	1.59	-1.19	-0.54	0.88	-1.91	-3.81 *	-0.13	-0.95	0.01
SELF_EMP	0.39	1.64	1.50	5.24	1.09	0.10	-0.40	0.52	0.07
CIM	-17.59	5.26	-48.31	-57.38	-57.42 *	-12.45	-27.39 **	14.21	-6.55 *
R-squared	47.01	35.63	25.85	48.35	66.27	80.15	90.55	32.67	6.80

Notes: Poland – POL; the Czech Republic – CZE; Hungary – HUN; Estonia – EST; Latvia – LVA; Lithuania – LTU; Slovakia – SVK; Slovenia – SVN; * Significant at the 5% level; ** Significant at the 1% level.

Source: authors' calculations based on the World Bank data

The literature review provided by Andrzej Wojtyna (2002) suggests unclear evidence about impact of institutions on economic growth in transition economies (including Central and Eastern European countries), possibly due to many different types of institutions being considered, difficulties to measure institutions quantitatively and many non-institutional factors affecting economic growth. According to the authors, transition countries are so much institutionally divergent that they should not be treated as a homogeneous region. Furthermore, economic growth differences depend much more on the policies adopted than on the type of institutions. Nevertheless, relatively sluggish economic growth in Poland at the beginning of the 20th century was caused by the gradual deterioration of institutional environment.

[1] The term sigma-convergence originates from the economic growth literature (e.g. Barro R.J., Sala-i-Martin X, 1992).

Table 4

Pearson correlation coefficients between CIM and selected economic metrics in eight EU Member States, 1990-2011

Variables	Contract-intensive money (CIM)								
	POL	CZE	HUN	EST	LVA	LTU	SVK	SVN	EU-8
VA_AGR	0.47*	..	-0.64**	..	0.20	-0.36	0.48	0.66**	-0.22*
EMP_TP	0.04	0.56*	-0.82**	0.23	-0.27	-0.46	-0.18	-0.58**	-0.27
FRM_BN	-0.74	-0.59	0.54	0.54	0.80	0.56	-0.99**	-0.99**	0.13
FDI_NV	-0.16	0.14	0.03	0.62**	-0.49*	-0.30	0.01	-0.12	-0.05
GDP_RATE	-0.13	-0.23	0.50*	-0.38	-0.62**	-0.37	-0.53*	0.04	-0.18
GFCF_PR	..	..	..	..	-0.35	-0.44	0.52	..	0.41**
CONF_HOUS	0.33	0.77**	-0.54**	-0.14	-0.39	0.12	-0.18	0.71**	-0.26**
VA_IND	0.02	..	..	..	0.19	-0.39	-0.53*	0.52*	0.45**
UEM_LTRM	0.07	-0.55	0.76**	-0.23	-0.14	-0.45	-0.78**	0.59*	0.00
NBUS_DNS	-0.41	0.02	0.86*	-0.96*	-0.25	0.40	0.22	0.00	0.21
CPTF_PR	-0.08	0.44	-0.01	-0.38	-0.26	0.10	0.26	0.12	-0.08
SELF_EMP	0.77**	-0.69	0.02	-0.22	0.02	-0.19	-0.77	0.44	0.17
UEM_TOTL	0.42	-0.14	-0.07	-0.31	0.43	0.29	0.28	0.65**	-0.14

Notes: * Significant at the 5% level; ** Significant at the 1% level; (..) – data are not available.

Source: authors' calculations based on the World Bank data

Although the theoretical connection between property rights and economic growth is uncontroversial, authors' results of multiple linear regressions of growth rate (Table 3) suggest that CIM does have significant but negative effect on GDP growth rates in Latvia, Slovakia and in all the countries treaded as one group. The other coefficients that were statistically significant throughout were FDI net inflows as % of GDP (Poland and Slovakia), employment to population ratio (Slovakia) and household final consumption expenditure as % of GDP (Lithuania). The overall fit of this regression was found to be quite high (with R^2 value ranging from 26% for Hungary to 91% for Slovakia).

The bivariate correlation coefficients between CIM and variables describing economic situation of the countries are presented in Table 4. The authors expected to find positive relationship between CIM ratio and all of those variables, except for unemployment. In Poland, there was statistically significant and positive CIM's correlation with Agriculture value added (% of GDP) and Self-employment. In the Czech Republic, CIM was positively related to Employment rate and Household final consumption expenditure (% of GDP). In Hungary, CIM yielded expected (positive) correlation with economic growth, New business density and Household consumption as well as unexpected (negative) with Agriculture value added, Employment, and (positive) with Long-term unemployment. For Estonia, in the analysed period CIM was positively related to net inflows of Foreign direct investment (% of GDP) but strongly negatively to New business density. Results for Latvia and Slovakia indicate significantly negative relation between CIM and economic growth rate. In Slovakia, there seems to be also a strong negative correlation of CIM with Firms using banks to finance investment and with Long term unemployment as well as a moderate negative correlation with Value added in industry. In Lithuania, no statistically significant correlation was found between CIM and the selected variables. In Slovenia, with the highest, in the group of countries under study, CIM's values in the period 1991-2011, they were statistically significantly associated with seven of twelve considered indicators; fairly high and positively with Household consumption, and with Value added both in agriculture and in industry.

The authors introduced two-year lagged values of CIM to capture the time necessary to respond to changing institutional environment and to demonstrate the possible initial effect of the property rights on the selected variables describing economic performance. Table 5 reports the results of the simple linear regression models for the selected countries.

The two-year lag of the explanatory CIM variable does not have a statistically significant effect on macroeconomic variables with exception of EMP_TP (all countries apart from the Czech Republic and Estonia), SELF_EMP (Poland and Slovakia), VA_AGR (Latvia, Slovenia), VA_IND (Slovakia and Slovenia), GDP_RATE (Hungary), GFCF_PR (Latvia), CONF_HOUS (Poland, the Czech Republic, Estonia, Slovenia), UEM_TOTL and UEM_LTRM (Poland, Hungary, Latvia and Slovenia), FRM_BN (Estonia), and NBUS_DNS (Lithuania and Slovakia).

Table 5

Simple linear regressions of macroeconomic variables on CIM (lagged 2 years) in eight EU Member States, 1990-2011

Dependent variables (at time t)	Contract-intensive money at time t-2 ($CIM_{t=-2}$) – independent variable							
	POL		CZE		HUN		EST	
	r	b	r	b	r	b	r	b
VA_AGR	0.30	5.2	..	..	-0.45	-15.1	..	..
EMP_TP	-0.50	-15.7*	0.34	3.9	-0.46	-11.4*	0.32	8.6
FRM_BN	-0.91	-26.5	-0.44	-18.1	-0.99	-600.2	0.99	199.3*
FDI_NV	0.01	0.2	0.45	10.5	-0.13	-42.1	0.12	6.2
GDP_RATE	0.01	0.2	-0.10	-2.2	0.59	33.9**	-0.19	-15.1
GFCF_PR	..	..	..	..	..	..	..	..
CONF_HOUS	0.74	13.7**	0.79	9.3**	-0.39	-21.8	-0.64	-16.6**
VA_IND	-0.19	-5.7	..	..	0.45	9.2	..	..
UEM.LTRM	0.58	48.4**	-0.27	-20.3	0.79	118**	-0.38	-30.6
NBUS_DNS	-0.43	-0.1	-0.71	-17.7	-0.73	-56.1	0.92	15.4
CPTF_PR	0.12	2.5	0.45	9.1	-0.05	-5.3	-0.26	-16.8
SELF_EMP	0.65	18.3**	-0.40	-3.9	0.24	4.4	-0.02	-0.1
UEM_TOTL	0.79	31.7**	0.18	2.3	-0.59	-23.3**	-0.16	-4.5
	LVA		LTU		SLK		SLV	
	r	b	r	b	r	b	r	b
VA_AGR	0.55	12*	-0.05	-2.4	0.43	3	0.58	4.2*
EMP_TP	-0.54	-28.4*	-0.55	-14.9*	-0.66	-10.9**	-0.52	-8.1*
FRM_BN	0.41	29.3	-0.89	-324.6	-0.94	-69.3	-0.74	-92.5
FDI_NV	-0.30	-9.7	-0.41	-12.5	0.36	12.1	0.03	0.4
GDP_RATE	-0.10	-9.5	0.16	13.9	-0.19	-6.6	0.44	10.9
GFCF_PR	-0.77	-70.7**	-0.60	-23.3	0.28	11.5	..	..
CONF_HOUS	0.08	2.1	-0.17	-4.6	-0.11	-2.6	0.60	10.1**
VA_IND	0.23	10.1	-0.21	-5.8	-0.53	-9.2*	0.60	10.1**
UEM_LTRM	0.50	85.2*	0.39	75.1	-0.46	-35.9	0.66	42.7**
NBUS_DNS	-0.72	-12.2	-0.92	-6.2**	-0.90	-6.6**	-0.83	-6.8
CPTF_PR	-0.27	-9.2	-0.05	-1.7	0.46	20.6	-0.17	-6.3
SELF_EMP	0.28	10.2	0.17	9.6	-0.64	-21.5**	0.23	2.6
UEM_TOTL	0.70	41.5**	0.44	30.2	0.80	25.4	0.59	5.2*

Notes: ** and * indicate significance of regression coefficients (b) and correlation coefficients (r) at the 1% and 5% level, respectively; (..) – data are not available.

Source: authors' calculations based on the World Bank data

Conclusions, proposals, recommendations

1. The aim of the research was to seek evidence of a relationship between Contract-intensive money and the performance of the national economies of eight Central and Eastern European post-socialist countries that joined the European Union in 2004. Drawing on the existing literature on the subject, the idea behind this approach is that, on one side, property rights determine how the resources, including financial assets, were, are or will be allocated, and on other side, that (private) property rights play a key role in economic activity and thus in the process of economic development. The concept of CIM is based on the assumption that the ways the financial assets are maintained depend on the property rights definition and enforcement. When households, farmers and firms operate in a stable institutional environment, in which property rights are well defined and protected, it is less risky to have assets deposited on bank accounts (including time-restricted accounts). Consequently, the proportion of deposits to the money supply will tend to rise. Effective property rights, other things being equal, will encourage investment, improve

the productivity and, hence, lead to a higher rate of economic growth and development.

2. The limitation of CIM ratio is that it can vary not only with respect to changes in governance of the property rights but may also be influenced by interest rates, inflation and other factors. Moreover, even if CIM is a good proxy for enforcement of property rights and contracts, an effective enforcement of private property rights by the third parties authorized by a government creates a dilemma of interpretation: states that are sufficiently capable of enforcing property rights may be also technically strong enough to confiscate wealth of its citizens (Weingast B.R., 1995).
3. Overall, the research results for the transition countries provide little empirical support for the notion that the better performance of the national economy is strongly related to the better enforcement of property rights. In cross-country analysis for eight Central and Eastern European states over the period from 1990 to 2011, the authors found unclear results that economic growth, levels of foreign direct investments, new businesses creation and using banks by private firms to finance investments go together with good property rights institutions as proxied by Contract-intensive money. The authors research provided evidence that CIM was statistically positively correlated with economic growth rate solely in Hungary; with employment rate – in the Czech Republic; with FDI – in Estonia; with household consumption spending – in the Czech Republic and Slovenia; with value added in agriculture – in Poland and Slovenia; with value added in industry – in Slovenia; with new business density – in Hungary, and with gross fixed capital formation by private sector – in the whole group of countries. In Slovakia, CIM was negatively associated with long-term unemployment to total unemployment ratio.
4. Some puzzling relationships between CIM and economic variables as well as lack of statistical significance, in fact, may be due to limitation of the linear method applied and insufficiently long time-series. More generally, the obtained results suggest that further research is needed on the interaction between property rights institutions and macroeconomic condition in the Central and Eastern European countries, especially after their accession to the European Union.

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ISSUES OF PUBLIC GOODS IN A MULTI-FUNCTIONAL DEVELOPMENT OF RURAL AREAS[1]

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Abstract. The paper reviews the concept of public goods, indicating its various dimensions. The fundamental objective of the paper is conceptualising public goods and answering a question whether agritourism can be treated as a public commodity based on multi-functional characteristics of agriculture. The lack of such studies also raises several essential issues and proposes objectives for this study: 1) to represent the main issues of public goods; and 2) to answer a question whether agritourism can be treated as a public commodity in a multifunctional development of rural areas. The following research methods were employed in the present research: monographic and descriptive methods, analysis and synthesis, and induction and deduction. Findings of foreign scientists were also used in the research, since there is a lack of scientific studies of agritourism as a provider of public goods.
Key words: public goods, development, agritourism.
JEL code: Q18

Introduction

Multi-functionality of agriculture is inextricably linked with creating public goods. A mechanism of public goods, seemingly simple, is a subject of study for many researchers (Buchanan J., 1962; Rowley C.K., 1993; Olson M., 1971; Wilkin J., 2010). Redefinition of previous agriculture models, focusing chiefly on the commodity output, and perceiving agriculture exclusively as a food provider, has led to a search for other directions of development (Czyzewski A., Kulyk P., 2011). Multifunction is not a phenomenon reserved only for agriculture but the problems are specific as well as public goods produced in this sector. A very important feature in this context is the natural character of the resources (especially land) in farming. However, the level of economic-social development causes a specific gradation of farming values in the system of public needs. A significant aspect, which is always paid attention to, is the biological character and multitude of intentional as well as unintentional "additional" products, which become of a public commodity dimension (OECD, 2003). The essence of multifunctional agriculture is to increase the tourist village by enrichment of the attractiveness of the landscape and the development of agritourism. There is a lack of scientific studies of agritourism as a provider of public goods, so a question arises whether the agritourism can be a public commodity? The agritourism is local public commodity that has been presented in the study due to the fairly small range of tasks, which should be adopted within the sphere of tourism. The study also focuses on presenting a general overview of the main issue of public goods in a multi-functional development in rural areas.

Aim and scope of the paper

The fundamental objective of the paper is conceptualising public goods and answering a question whether agritourism can be treated as a public commodity based on multi-functional characteristics of agriculture. The paper reviews the concept of public goods, indicating its various dimensions according to the agritourism development. The lack of such studies also raises several essential issues and proposes objectives for this study: 1) to represent the main issues of public goods; and 2) to answer a question whether agritourism can be treated as a public commodity in a multifunctional development of rural areas.

The following research methods were employed in the present research: the monographic and descriptive methods, analysis and synthesis, and induction and deduction.

Findings of foreign scientists were also used in the research, since there is a lack of scientific studies of agritourism as a provider of public goods.

Main issues of public goods

The market and price mechanism that have enabled to adjust supply and demand, guaranteeing optimal use of resources both on the microeconomic level and on the macro scale operates in the field of neoclassical economics with its assumptions of perfect competition. However, in the real world, it was evident that the market mechanism did not function as smoothly and that it often diverged from the model of perfect competition. One of the fundamental signs of market imperfections concerned certain types of goods the economics describes as public goods

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Table 1

Public goods compared with other types of goods

Exclusion		Division	
		High degree	**Low degree**
	Impossible or difficult	Public goods	Common pool goods
		- national defence - observing a sunset	- natural resources; lake water, catching a fish, hunting
	Easy	Club goods	Private goods
		Museums, cinemas, telephone services	Services, products

Source: authors' construction based on Stiglitz, 2004

(Hofmokl J., 2009). The theory of public goods is one of the elements of a wider theory of public choice (Wilkin J., 2005)[4], comprising, inter alia, the theory of economic democracy, the theory of group interest, the theory of common goods, or the analysis of rent-seeking mechanism. These theories function in the current of new institutional economics, which is an apt synthesis of the neoclassical economics and the economics of institutionalism[5]. It is currently one of the most rapidly developing trends of modern economics, generating interest of other social sciences as well, namely, political science, sociology, and law. The theory of public choice is called the economics of politics theory. This relatively new field of economic sciences involves applying methodological tools and assumptions of standard economics to analyse people's behaviour in the activities of political character and in other areas of public sphere (Wilkin J., 2005).

A majority of goods and services available to human are acquired individually on the market and they constitute our private goods (Wilkin J., 2010), a part of which people use without incurring high (or even any) costs (public goods). What economic properties do such goods demonstrate? What differentiates them from the goods that fulfil human needs via private markets? A definition of public goods needs to be stipulated in order to answer these questions.

Economics defines public goods as means, which are used to satisfy human's needs. A general definition of public goods concentrates on two features: non-rivalry and non-excludability (Atkinson, A. and J. Stiglitz, 1980; Starrett D., 1988). The theory was formulated in 1954 by an American economist and statistician, a Nobel Prize winner, lecturer at the Massachusetts Institute of Technology, Paul Anthony Samuelson (Samuelson P.A., 1954) who assigned them with the following properties while defining the goods:

— no one is excluded from the benefits resulting from their use (non-excludability from consumption) - means that goods publically consumed by one individual do not eliminate the possibility of the same commodity being consumed by another one, the goods are desired by the society, while the market mechanism is unable to provide them. Typical cases of rival consumption concern goods such as clothing or bread; whereas, benefiting from a fireworks display will be of non-rival consumption nature. It is impossible to exclude such it from consumption, since if someone is at a spot, which gives a good view of the display, then a company organising the display is not able to forbid him/her to admire the show. On the contrary, fireworks are not competitive consumption-wise, because watching them by one person does not deprive others of the possibility to watch the same show;

— a rise in the number of users neither eliminates nor decreases the possibility of a certain commodity being used by all users (they are non-competitive consumption-wise). Whereas, the property of certain goods is that they are available to everyone. One cannot prohibit others, in a simple manner and without a great degree of effort and means, to use those goods. Without a doubt, such goods include fresh air, music, lake water as well as television or public libraries. Consumers of those goods may freely make use of them even when they do not pay for them, which obviously influences their readiness to incur such payments when they are of obligatory nature (Hofmokl J., 2009).

Public goods are also called non-market goods. They are then defined as goods and services, which are linked with market transactions, and there are no value measures defined for them by the market (Lojewski S., 2007). From the point of view of institutionalised economics, public goods are an extreme case of an external effect. In accordance

[4] Wilkin J., 2005. The theory of public choice - Homo Economics in the sphere of economics. In Chapter I, the author presented a wide area of interest in the theory of public choice and its relations with a general theory of economics and other social sciences. The material constituted the methodological foundations for the theory of public choice and its significance for the rationalization of the public sphere. Warszawa, pp. 9-29.

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with the definition of an external effect[6], they cause a divergence between costs and benefits generated by private individuals and the society. In the context of public goods, all their benefits are of external nature, i.e. the goods are not used by buyers but by all consumers. External effects can be liquidated or strengthened through adequate setting of taxes and subsidies. It can be achieved on the basis of Coase theorem (positive external effects) or Pigovian tax (negative external effects) (Fiedor B., 2002). It results from the fact that both positive and negative external effects cause inefficiencies in the allocation of resources in Paret's sense and, as a reason for the unreliability of market mechanisms, they are used as an argument for the state's intervention.

Hofmokl emphasises that reverting to the concepts and views presented within the scope of mainstream economics, a widely understood category of public goods is clearly associated with the state's involvement in goods production and distribution. The need for such an involvement arises to a varying degree and it concerns not only the so-called pure public goods and mixed public goods but also certain types of private goods – the so-called collective goods. From the start, critics have been pointing out that private goods and pure public goods represent extreme examples of many, if not a majority of goods.

Samuelson recognised the existence of such intermediary cases but he questioned the yielding of problems related with them (Fiodor B., 2002; Samuelson A. 1954). Irrespectively of Samuelson's pessimism on the probable enterprise productivity, it appeared in the literature through the recognition of "impure public goods" (mixed public goods). The idea of "mixed goods" is a starting point for the definition of multi-functionality. In practice, there are many goods and services, which fall into the category of pure public or private goods. Consequently, it is difficult to conclude whether markets or the government is their suitable providers. According to Wilkin (Wilkin J., 2010): *both in modern economies and in public life a search continues for ways of merging effectiveness of market mechanisms and social needs for delivering goods of public nature. Mixed goods, called merit goods, feature such characteristics.* Merit goods give a start to complex processes of redistribution, which involve applying exceptional taxes. Infrastructure limiting the pollution of the natural environment is an example of a merit commodity of positive external effects.

The questions evolve around the economics of overpopulation, coming largely from Charles Tiebout's publication titled "Local Public Goods" and a pioneering study of James Buchanan "Club Goods" (Buchanan J., 1965, Tiebout Charles M., 1956). Toll goods or club goods are typically of local range and they occur in a situation when a limited (selected) circle of users covers jointly, in the form of periodic fees, the costs of operation, and in return acquires the right to use the goods freely, while at the same time excluding all other potential users. This in practice means that club goods include goods that meet only one of the conditions presented by Samuelson. The so-called country clubs could serve as an example of such, along with closed sports-recreation centres, residential estate systems of day care for children, cable television, and theatres. Toll goods, as opposed to private goods, for which one pays as well, are divisible. Many people can use them at the same time without any detriment to such a commodity. A theatrical performance or a television programme can simultaneously be watched by a large number of viewers. At the same time, it is easy to define which viewers are entitled to watch a performance, e.g. by checking the possession of entry tickets. Thorough research resulted in creating separate theoretical constructions for toll goods (Buchanan, 1965; Cornes, Sandler, 1986).

Additionally, a question arises whether the provision of public goods on a local level produces the scale effects. The provision of public goods on a central level enables achieving the returns of scale; however, it is frequently ineffective (because of a varying demand of local communities for a certain commodity). Locally provided public goods generating positive external effects require properly extensive borders of a territorial unit. In order to provide public goods effectively, a region incurring the costs needs to use all the external effects. In line with the definition of the World Bank, public goods generate shared benefits; whereas, public evils generate shared costs. The spatial reach of such external effects determines whether a good is local, regional, national, or global. As Kopczewska stresses that *one cannot automatically assume that the scope of reach is determined by goods provider. Local goods can be delivered by the state, while global goods/evils by a city or region* (Kopczewska, 2008). The definitions of public goods quoted above and used currently by economists are not entirely consistent with the common understanding of a public commodity as a commodity available and destined for everyone and linked with an office or a non-public institution (a similar definition was used in the economics of the first half of the 20th century, and it is currently used in political discourse). Public goods understood in this way are typically defined by economists as social goods. These are goods which ordinarily could be private goods but for a variety of reasons, usually as a result of social policy conducted by the public authorities, they area available to every citizen and they are financed from

[6] A classic definition of an external effect involves a transfer of a part of the costs or benefits arising from the activities of one entity on third parties without adequate compensation. Instances of environment pollution caused by the production of certain industrial goods are a typical example of external effects. External effects take place outside of the market, which is the main reason for the difficulty in determining the value of and enforcing compensation. These effects are to be understood as costs or benefits of economic nature, and not exclusively financial. Their occurrence causes interference in the functioning of market mechanism and it is one of the reasons for market unreliability. The concept of external effects was introduced by a British economist Arthur Pigou in 1920, as one of the central concepts of the welfare economics. It also plays a crucial role in the issues of environment protection and sustainable development.

the public funds (e.g. education or health care) (Baum R., Sleszynski J., 2009). Table 2 illustrates the classification of goods according to the degree of their use by the society.

Oates (Oates W., 1972) identifies the variation of society's preferences as a rational argument in favour of decentralisation. The idea is that the centralisation and standardisation of goods provision to the population, which is diversified in respect of its preferences, is not optimal from the point of effectiveness *"the affluence level will always be higher if the level of consumption of local public* commodity *is determined by each territorial unit on an individual basis as opposed to the value being determined from above when external effects and no cost limits occur."* The benefits of the scale effects appearing when the costs of providing public goods decrease as their amount increases weigh against decentralisation. The benefits of scale result from harmonising the policy, when heterogenic preferences in individual regions are not taken into consideration.

Public goods provided by agritourism

Global public goods are the goods that are universal to all countries, population groups and generations. The provision of such goods involves, inter alia, oxygen production; coal sequestration (significant for the prevention of climate change); bio-diversity conservation (regarding genetics, species, ecosystems); water protection; and ensuring food security. Since these are universal goods that are of equal importance to all people they ought to be paid for according to a uniform system in all countries.

In case of local public goods *(consumed on a local level), payment for their provision should probably occur on a local (national or regional) level.* Among other things, natural and cultural landscapes classify as one of them, so are human-made elements as well as elements of historic, cultural, or archaeological value, and elements constituting an important part of the environment. On account of its disturbed ability to self-regulate, landscape requires protection that will allow it to maintain a balance and the landscape's characteristic properties. Landscape protection involves maintaining its previous values, both primeval/natural as well as those created by man, through an adequate manner of management. Cultural heritage of the countryside and establishing conditions for recreation and leisure pursuits (agritourism) provide for the uniqueness of Poland's agricultural landscape. The possibility of communing with nature is partly paid for by buying private goods (farm tourism holidays). In this case, it means a risk of transforming a public commodity into a club commodity.

Agritourism as a tool for the development of municipalities, existing in symbiosis with the multi-functional development of rural areas ought to, on the one hand, serve a basic function enabling the diversification of local economy. On the other hand, it ought to act as a catalyst for the quality of life of the municipality residents and tourists. The factors affecting tourists' experience of a tourist farm depend to a significant degree on the level of tourist appeal, natural assets, and quality of tourist offer of a particular village, i.e. the so-called free goods, public goods, and external effects. The quality of public goods chiefly influences the form of tourist offer, recreational quality of tourists, yet, above all the residents' quality of life.

Agritourism as a public commodity is linked with the theory of "the tragedy of common pasture" and the issue of free riding. The goods and services provided by local government fulfilling tourist functions are typically of public character. There is often a temptation to use a communal resource without incurring full costs of its maintenance. It may be by taking over a part of demand created for agritourism services without bringing in one's own contribution. Municipalities neighbouring a cost-incurring municipality might act as such free riders, in hope of taking over tourists, or they could be tourist farms competing between one another (Kopczewska K., 2009). The model of multi-functional agriculture (apart from producing commodity output) recognises the significance of rural areas and care for the protection of water, soil resources, protection, and preservation of habitats or landscape formation. Trying to make up for economic lag requires the introduction of suitable instruments of support creating favourable conditions for the improvement of public goods and cultural diversity of the Polish countryside. Placing in space goods of primary nature determines the location of goods of complementary nature. The occurrence and saturation of space with tourist infrastructure is non-uniform, as the geographical environment resources are unequally distributed in space. Tourist areas, through the quality, character, type, and availability of tourist development, try to compensate for basic tourist goods. Agritourism activity, accounting for the natural environment and social-cultural factors, contributes to the transformations occurring in the areas. It means that in the remaining spheres (spatial and economic ones) changes take place in the development of rural areas.

Conclusions

Multi-functionality in agriculture was already noticeable in the past, while the scale of its occurrence characterises the scope of using the labour resources and real capital at farms as well as the scale of employment unrelated to agriculture. In the Polish scientific literature, a discussion has been conducted on the multi-functionality of rural areas, involving economic diversification of the countryside, thus, increasing the opportunities of employment in non-agricultural activity in the rural areas. A problem of quantification and evaluation of non-commodity outputs of agriculture arises. Does the production of market goods and non-market goods by agriculture, including merit and public goods, enables measuring and valuing the effects of agricultural activity? By delivering market and non-market goods, the concept of agritourism refers to the idea of sustainable development, whose message is emphasising that the delivered public goods are subject to a choice made by the society in line with the public choice theory. Due to the nature of the activities in the area of agritourism as a public commodity, it is not possible to apply the financial performance indicators. Hence, the practical purpose of the researchers will be developing methods of valuation of the benefits and costs of production by agritourism as a provider of public goods. In addition,

an adequate compensation to farmers for the delivery of such goods and the size of public funds intended for the financing of public goods by agriculture are combined in this agritourism. Despite the fact that agriculture at the same time provides public goods and private is subject to receipt of these first by the society is to provide farmers with compensation for lost benefits connected with the resignation of maximum exploitation of the natural environment, which is a condition to compete on the market of agricultural produce. Therefore, if it is not possible to pay farmers for the provision of public goods through the market, the necessary institutional solutions are required to guarantee the due compensation.

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LATVIA RESEARCH FUNDING AND QUALITY OF RESEARCH ACTIVITIES

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Abstract. The economic crisis has had a significant impact on funding in research and development (R&D). The main aspect of R&D reform is a clear balance between research funding and quality of research activities. The paper presents the analysis how the structure of the Latvia R&D funding system promotes the quality of research activities in research institutions
The author concluded that the financing system of Latvia R&D with the basic financing grants and the external grants has a number of strengths and weaknesses. Regarding the research quality, the proportions of the basic research grant amount distributed for the maintenance, remuneration and development tasks of a research institution differ.
In general, the lower is the value of the total research quality criteria, the bigger is the proportion allocated for the scientific staff remuneration of the total amount of the basic research grant. The competitiveness grants of the research financing represent 92% of the total research amount, and so huge proportion of the competitiveness fund significantly limits the possibilities of research institutions for a long-term planning. The existing funding system causes structural imbalance, and the Latvia R&D funding system is mainly characterized by a performance based system.
Key words: scientific quality, research funding system, basic research grant.
JEL code: I230

Introduction

The economic crisis has had a significant impact on funding levels in research and development (R&D), and now, the main aspect of the R&D reform is a clear balance between research funding and quality of research activities. The EU Communication on "Regional Policy contributing to smart growth in Europe 2020", published in 2011, sets out the role for Regional Policy in contributing to the implementation of the Europe 2020 strategy. Therefore, the necessary Latvia competitiveness, reorientation from labour-consuming to knowledge-based economics as well as necessity to fulfil the targets of the strategy EU 2020 concerning higher education and research (investment in research 3% from GDP, young inhabitants with higher education predomination 40%, etc.) will be provided. According to the European Union's strategy "Europe 2020" for smart, sustainable and inclusive growth, the Commission called on member states to focus funding on relevant outputs rather than inputs, using clearly defined targets and indicators together with international benchmarking. Public funding of research institutions, including higher education institutions, is one of the main sources of income for the state research institutions in all the EU member states (Figure 1).

Research institutions must be granted public funds in such a way that promotes effectiveness and efficiency. In general, most countries use a mixture of different research funding mechanisms. In this sense, the funding tools that have been experimented in some countries are as follows:

— formula based funding,
— performance funding;
— competitiveness and targeted funds.

Input-based mechanisms, which can be a part of a formula and focus on inputs to research institutions, such as the number of research personnel, are one of the approaches used in the R&D system. Performance-based mechanisms may be based on outputs, such as the number of publications, or inputs, such as and the number of PhD students/staff with certain characteristics (young researchers). Usually the main funding mechanism is accompanied by a funding formula, or the formulas are used to determine the block grant allocated to research institutions (Modernisation of Higher Education in Europe, 2011).

There are strengths and weaknesses of input-based and output-based funding types. The basic research grants secure the research institutions a long-term planning and steering of activities, and the basic grants enable institutions to initiate research with strong emphasis on the "frontier research". The main problem is to show the basic research grants' efficiency and relevance according to the inputs and outputs of research institutions. Competitiveness and targeted funds raise efficiency and quality, but research funding is complicated due to bureaucracy and unwieldy management (Rates of return and funding models in Europe, 2007).

Research hypothesis – to assure the research quality, the structural balance of the research funding system is necessary.

The objective of the paper is to analyse how the structure of Latvia R&D funding system promotes the quality of research activities in research institutions. The following discussion focuses on the Latvia R&D funding mechanisms, through which more than 24% of the overall public funding is distributed.

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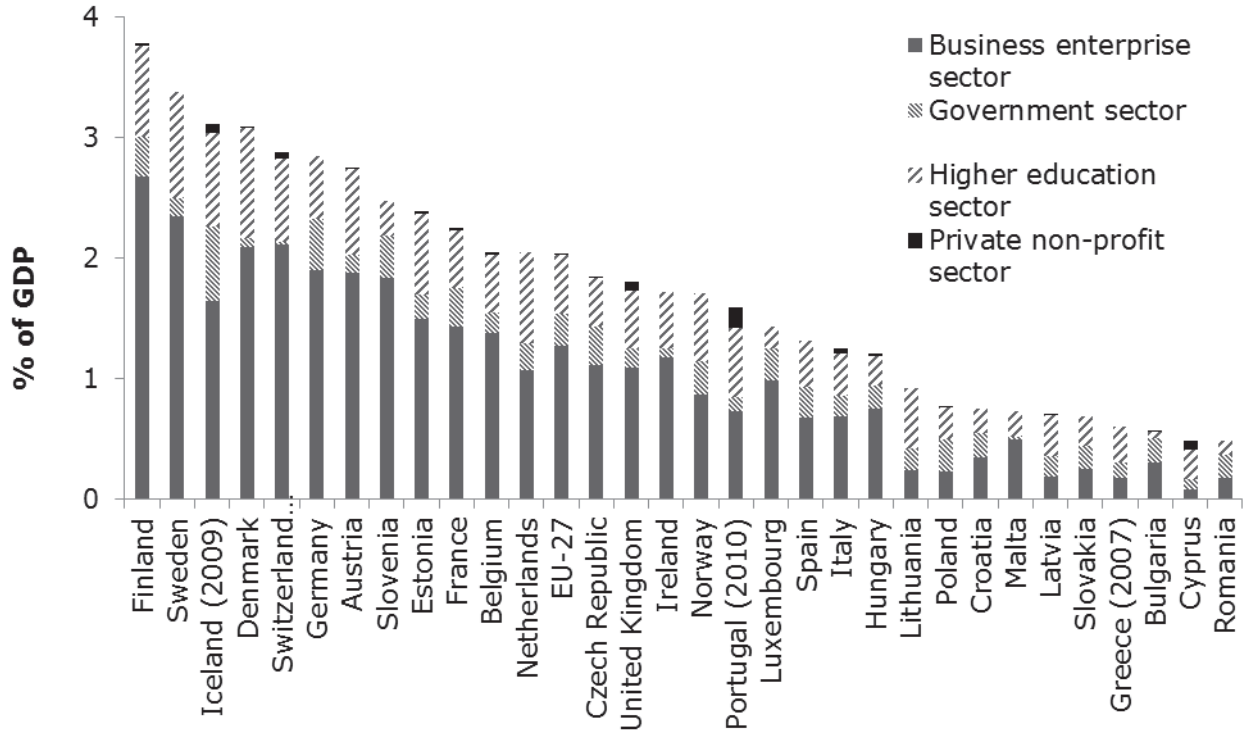


Source: author's construction based on EUROSTAT data

Fig. 1. **R&D expenditure by sector of performance in the EU and other countries in 2011 (% of GDP)**

In order to achieve the aim, the following tasks were set to:

— to analyse the structure of Latvia research funding system;
— to analyse the basic research grant for the state research institutions;
— to analyse different proportions of the basic research grant distributed for the maintenance, remuneration and development tasks depending on the research quality of a research institution.

The structure of research funding system in Latvia

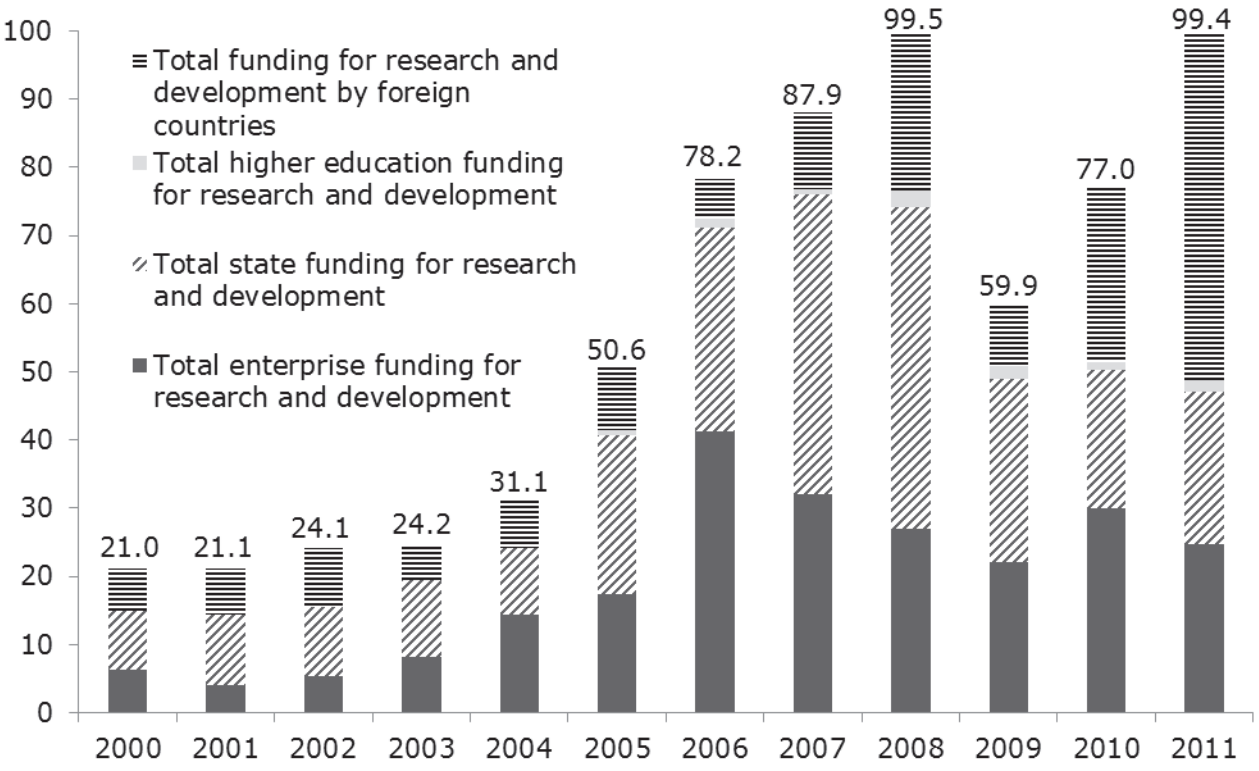
In 2011, approximately 76% of the total research funding was constituted by external funding (foreign and enterprise financing), and only 24% of the total research funding consisted of the state financing. The level of the external grants varies among different research areas of technical and natural sciences, human and social sciences. In 2011, approximately 25% of the total research funding came from private funds, firms and organizations (Figure 2).

Latvia has a two-tier system for resource allocation to research. The first tier is the basic grants from the Financial Act allocated by the Ministry of Education and Science (MoES) to the research institutions. The second tier comprises resource allocation from the Latvian Council of Science, state research programmes, foundations, R&D funds from individual ministries, the EU, and private funds.

The total amount of the basic grants represents 36% of the total state financing, but at the same time it constituted only 8% of the total research financing in 2011. The basic funds allocated through objective formulae are regarded as a capital to a research institution for a long-term planning, for its adaptation to changes in the demand, and for the outcome and quality of the basic research.

The basic grants enable the institutions to maintain buildings, infrastructure etc. through periods of falling revenues from other sources. The size of this grant depends on a formula. The second tier of the research financing consists of:

— competitiveness research grants, provided by the Latvian Council of Science, up to 4% of the total research amount;
— state research programmes, provided by the Ministry of Education and Science, are state commissions for the performance of scientific research in a specific economic, educational, cultural or other sector, which is the state priority, with the purpose to promote the development of the particular sector, up to 4% of the total research amount;
— R&D funds from individual ministries, up to 8% of the total research amount;
— research carried out to fulfil demands of the industry, the government and other public sector organizations, up to 25% of the total research amount;
— market-oriented research, provided by allocating the state budget resources to the practically applicable projects, the purpose of which is to promote the integration of science and manufacturing, the development of technology-oriented fields and the



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

Fig. 2. **R&D expenditure (mil LVL) by sector of performance in Latvia**

creation of new jobs using the EU Structural Funds as well participation in the EU research programmes (e.g. FP7), up to 51% of the total research amount.

The second tier of the research financing represents 92% of the total research amount, as opposed to first tier of research financing or basic grants, which represents only 8% of the total research amount. Contrary to most of the other grants and sources of income of the research institutions, the basic grants are allocated to research as a predominantly non-specific activity related funds. The distribution of the grants among the research institutions depends on inputs/outputs and is based on historical aspects.

Basic research grant for the state research institutions in Latvia

The amount provided by the basic research grant for the state research institutions, the state institutions of higher education and the research institutes of the state institutions of higher education that are registered in the Register of Research Institutions is allocated in accordance with the procedures specified by the Cabinet of Ministers of the Republic of Latvia. The basic research grant is allocated as a lump sum to the state research institutions. The basic grants are not earmarked for specific research purposes. According to the Law on Scientific Activity, the basic research grant of the state scientific institutions shall be composed of resources for:

— the maintenance of research institutions (maintenance of buildings and equipment, payment of public utility services, work remuneration of administrative, technical and maintenance staff);
— remuneration of the scientific staff involved in the performance of the scientific research specified by the founder;
— development of the research institutions registered in the Register of Research Institutions, according to these institutions' operating strategy for achievement of objectives. The responsible ministry must approve the operating strategy of the research institutions.

These grants are important for supporting the basic research and improvement of its quality. The proportion of the basic grants can be tied to co-financing of external projects (Frolich N., 2006). The basic research grant for scientific institutions is granted on the basis of the scientific performance indicators: type of projects, publications' impact on the development of scientific knowledge, cooperation with businesses and other customers, cooperation in higher education and scientific qualification as well the average number of scientific staff in full-time equivalents (FTE) in research institutions. In Latvia, a mixed formula base funding and performance-based funding model has been introduced for the basic research grant allocation. The basic funding will be distributed to research institutions according to the quality of research (The Cabinet of Ministers of the Republic of Latvia, 2009). The output-oriented, formula-based funding model used

for allocation of funds for research institutions has three main components:

$$BF = (I + P) \times A \quad (1)$$

where

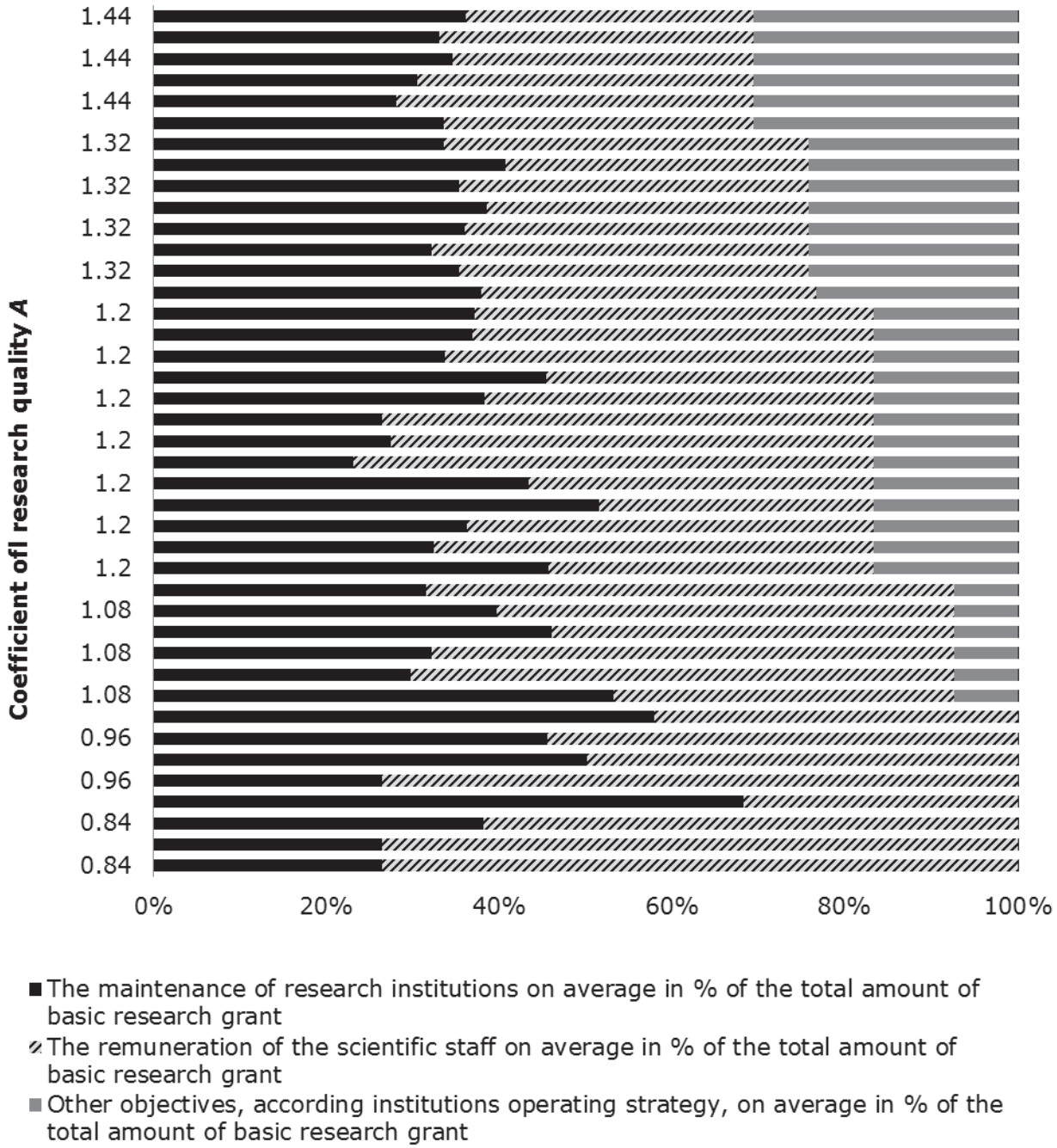
— I is the maintenance of scientific institutions and depends on the coefficient K of the research field: K=2 for natural, engineering, technological, health, environment, agriculture and forest science, and K=1.3 for social and human science;

— P is the remuneration of the scientific staff;

— A is the coefficient of research quality of research institutions.

The coefficient of research quality of research institutions:

$$A = E \times 0.12 \quad (2)$$



Source: author's construction based on MoES data

Fig. 3. **The distribution of the resources for the maintenance of research institutions, remuneration of the scientific staff and development of research institutions in 2012, depending on the coefficient of research quality**

where

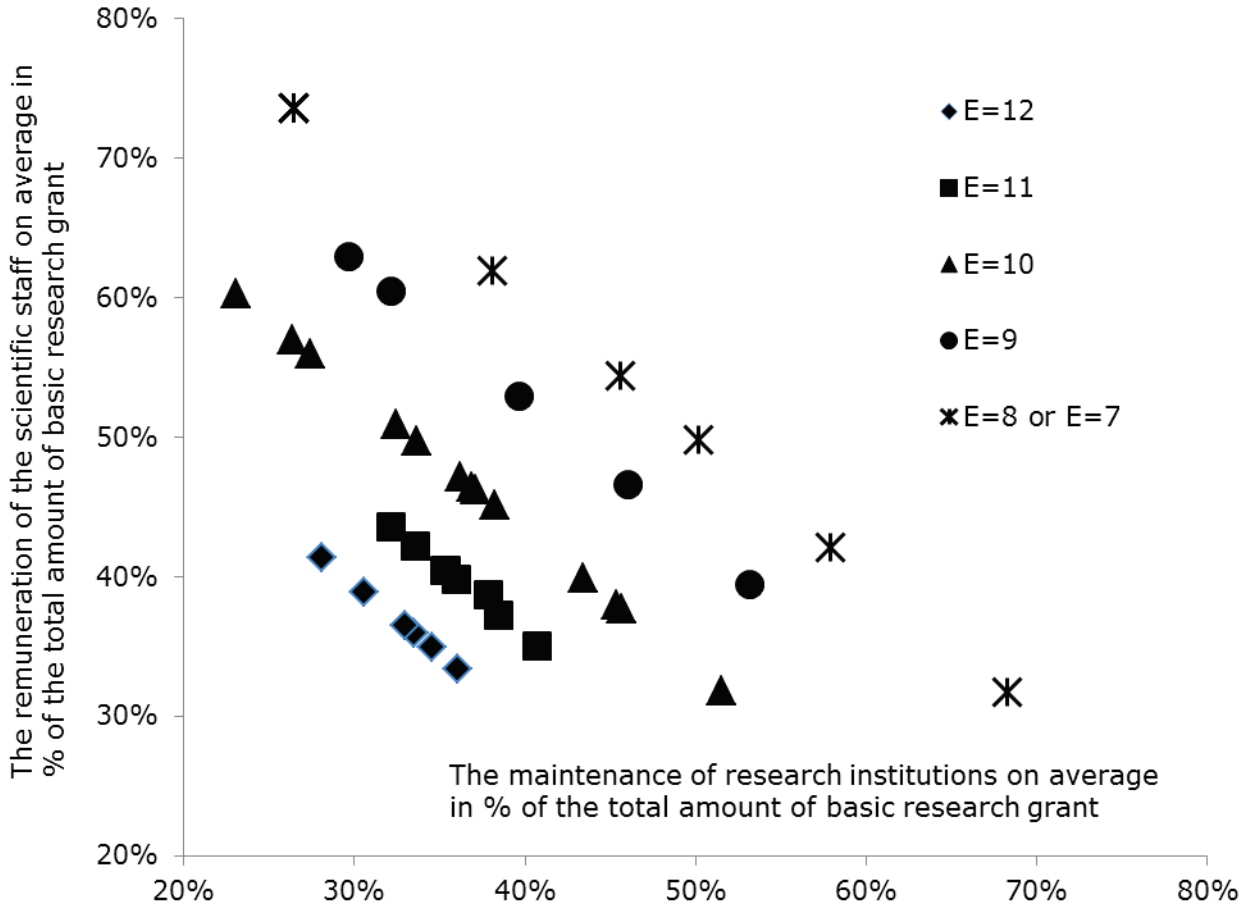
E is the total sum of four criteria E_1, E_2, E_3 and E_4, and:

— E_1 is the discrete evaluation of the number of research projects per FTE;
— E_2 is the discrete evaluation of the number of research publications per FTE;
— E_3 is the discrete evaluation of the number of international and Latvian patents and licenses, number of market-oriented research projects per FTE;
— E_4 is the discrete evaluation of the number of master degree and PhD theses per FTE and/or the % of young researchers from the total number of scientific staff (max, if 20% or more of young researchers).

The maximum value of all criteria E_1, E_2, E_3 and E_4 is 3 points, and the minimum value is 0 points. The discrete value of E_i (i=1,..,4) criterion depends on the quantity and quality of research activities of research institutions. For example, the second criterion E_2 "discrete evaluation of the number of research publications per FTE" has a maximum value 3, if the last five years a research institution had 0.5 research publications per FTE of research personnel published and indexed by *Web of Knowledge*, *SCOPUS* or *A&HCI*, *SSCI* or other leading internationally available research databases, or 0.3 monographs per FTE of research personnel listed in the U.S. Library of Congress catalogues. At the same time, E_2 criterion has a minimum value 0, if a research institution had no research publications during the evaluated period.

The total sum of the four criteria *E* can vary from 0 to 12, and respectively the coefficient of research quality of research institutions *A* from 0 to 1.44. Using the formula to calculate the maintenance of scientific institutions *I* and remuneration of the scientific staff *P*, the total amount of the basic grant *BF* using formula (1) was evaluated each year for research institutions using the previous year data. It is important to note, that the Ministry of Education and Science is planning the basic research grant for each research institution in proportion to the annual state budget for the total basic research grant. In 2012, the basic research grant consisting of 8 mln LVL accounts only for 20% of the estimated total basic research grant, based on the research institution's quantitative and qualitative data for the year 2010.

The basic funds allocated by the objective formulae enable the institutions to maintain buildings,



Source: author's construction based on MoES data

Fig. 4. **The relationship between the maintenance of research institutions and remuneration of the scientific staff in 2012 depending on research quality of the research institutions**

infrastructure, and remuneration and fulfil other objectives, according to institutions' operating strategy. The Figure 3 shows the distribution of the resources for the maintenance of research institutions, remuneration of the scientific staff and development of research institutions in 2012, depending on the coefficient of research quality. The research institutions with the coefficient of research quality *A* more than 1 have a possibility to arrange financing not only for the maintenance and remuneration but also for the development of the research institution. If the coefficient of research quality *A* is less than 1, the research institutions are not sustainable and have spent the basic research grant mainly for the remuneration of the research personnel.

Research results and discussion

Regarding the research quality coefficient, different proportions of the amount of the basic research grant are distributed for the maintenance, remuneration and fulfilment of development tasks of a research institution. For example, in 2012, one-third of the fund was distributed for the higher quality research institutions with research quality coefficient *A*=1.44 or *E*=12 to facilitate the development tasks of the research institutions. Whereas, the distribution for the institutions with the research quality coefficient *A*=1.32 or *E*=11 was up to 24%, for the research quality coefficient *A*=1.2 or *E*=10 – up to 16%, but for the research quality coefficient *A*=1.08 or *E*=9 – up to 7% of the basic research grant. The research institutions with the research quality coefficient *A*=0.96 or *A*=0.84 are not granted funds for the research institution's development and are not sustainable.

The analysis of the distribution between the funds for the maintenance of research institutions and remuneration of the scientific staff shows that there is a big difference between the research institutions. It can be explained by the research field, the number of research personnel and scientific staff as well as by the maintenance of research buildings. The relationship between the maintenance of research institutions and remuneration of the scientific staff in 2012 depending on the quality criteria of the research institution *E* is shown in the Figure 4.

It is concluded that those research institutions that have *E*=12, on average are allocated 33% of the basic research grant for the maintenance of research institutions and 37% for the remuneration of the scientific staff. Whereas, the research institutions with the research quality *E*=8 or *E*=7 receive on average 42% of the basics research grant for the maintenance of research institutions and 58% for the remuneration of the scientific staff. In general, the lower is the total research quality criteria *E* value, the bigger is the proportion of the remuneration of the scientific staff *P* within the total amount of the basic research grant. The Table 1 gives information about the relative distribution within the basic research grant among the maintenance of research institution, the remuneration of the scientific staff and other objectives, according to institution's operating strategy in 2012.

In Latvia research institutions, the increasing compliance obligations (due to the EU Structural Funds projects, the Latvian Council of Science grants, and the European framework projects) significantly reduce the research institutions' room to manoeuvre and to set their own research agendas. It is estimated that 92% of research institutions' research income now comes from the EU Structural Funds, the Latvian Council of Science or other contract funding. As the result, research subsidies cover only 8% of the total costs. Due to the EU Structural Funds projects, one of the biggest changes in Latvia R&D funding is the significant increase in contract funding. The contract research in research institutions covers about 92% of all the research. The contract research includes all the research activities that funded by third parties, but not by the Ministry of Education and Science and the Latvian Council of Science. The competitive funding raises quality, however these grants target often areas that are too narrow and do not promote frontier research (Schmidt E.K., Langberg K., Aagaard K., 2006).

Table 1

Relative distribution of the basic research grant among the maintenance of research institution, the remuneration of the scientific staff and other objectives, according to institution operating strategy in 2012

Total research quality criteria E	Number of the research institutions	The maintenance of research institutions I	The remuneration of the scientific staff P	Other objectives, according institutions operating strategy
		on average in % of the total amount of basic research grant		
12	6	33 %	37 %	30%
11	8	36 %	40 %	24%
10	13	37 %	47 %	16%
9	6	39 %	54 %	7%
8 or 7	8	42 %	58 %	0

Source: author's calculations based on MoES data

Now, the Ministry of Education and Science is discussing a new funding model for R&D in Latvia in response to concerns about the R&D cost effectiveness. The promoters of the reform considered the previous funding system as the cause of structural imbalance, because a part of the research institutions with low research quality does not have a real funding for the development. The financing system will influence the research strategies of the research institutions. The Latvia R&D funding system is mainly characterized by a performance based system.

Conclusions

1. The financing system of Latvia R&D with the basic financing grants and external grants has a number of strengths and weaknesses. Regarding the basic grants, there is clarity about the importance of this aspect in scope of the financing system, since the basic financing grants provide research institutions security and enable a long-term planning. In addition, the basic grants are significant for research institutions providing a possibility to be flexible and adaptable to changing conditions. Accordingly, the factual amount of the basic financing grants is not on the assumed level as they should be according to the estimated value by the Ministry of Education and Science, and represent only 8% of the total research amount.
2. The research financing by competitiveness grants represents 92% of the total research amount, and so huge proportion of competitiveness fund significantly limits the possibilities of research institutions for a long-term planning. The research institution is forced to pay more attention to projects with available funding rather than to projects where research institution has a high competence and is more competitive. The research institutions with a high coefficient of research quality have a possibility to arrange financing not only for the maintenance and remuneration, but also for the development of research institution. Otherwise, the research institutions are not sustainable and spend the research grants mainly for the remuneration of the research personnel.
3. Depending on the research quality coefficient, different proportions of the amount of the basic research grant are distributed for the maintenance, remuneration and development tasks of a research institution.
4. The analysis of the fund distribution between the maintenance of research institutions and remuneration of the scientific staff shows that there is a big difference between research institutions. It is explained by the research field, the number of research personnel and scientific staff as well by the maintenance of research buildings. In general, the lower is the value of the total research quality criteria, the bigger is the share of the remuneration of the scientific staff within the total amount of the basic research grant.
5. Now, the existing funding system is considered as the cause of structural imbalance, because a part of the research institutions with low research quality does not have real funds for the development. The Latvia R&D funding system is mainly characterized by a performance based system.

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THEORETICAL ASPECTS, REGULATION AND EXPERIENCE IN THE MANAGEMENT OF THE PUBLIC AND PRIVATE PARTNERSHIP IN LATVIA AND THE EUROPEAN UNION

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Abstract. Currently, the development of enterprises takes place in a competitive and complicated entrepreneurship environment, which is subject to rapid changes. Public and private partnership (PPP) is an agreement between a state agency (federal, state, or local) and a private sector. With this agreement, skills and means between public and private sector are shared, ensuring the availability of services or equipment for public usage.
There is much research carried out concerning PPP in the European Union Member States, yet in Latvia there is little and contradicting publicly available information concerning PPP. Society is not aware of PPP: normative regulation is poor, parties involved in PPP lack knowledge and skills in the process of PPP project management. There is limited study on the theoretical aspects carried out in Latvia market. These factors determine the topicality of the research. The aim of the research is to analyse the theoretical aspects of PPP and to characterise the experience of PPP in the EU Member States and Latvia, assessing interviews of PPP experts. In the research, the authors applied content analysis and interviews. There are 143 literature sources, published between 2010 and 2012, analysed.
The authors conclude that society is poorly informed about PPP projects even though the facilitation of PPP application is mentioned in the National Plan of Latvia. The biggest obstacles for implementation of PPP are the high proportion of the shadow economy, poor normative regulation, and the shortage of competent specialists.
Key words: public private partnership, sustainable development, partner benefits, assessment criteria of the results management.
JEL code: L32

Introduction

Nowadays, companies need to develop and grow in this highly competitive and business- challenging environment, that is subject to rapid changes. Companies strive to meet the interests of the owners, the market interests, and society, in general. Entrepreneurs may have a necessity to create a partnership in their business. Public and private partnership (PPP) is an agreement between the government agency (federal, state, or domestic) and the private sector. With this agreement, the skills and resources between the sectors (public and private) are shared providing services or facilities available for the public use…" (The National Council for Public Private Partnerships, 2012).

Based on the global interest and frequency of the PPP model usage in the European Union (EU) and other countries, there is no doubt about usefulness of PPP. In some EU countries, the work has been done in such a way that other countries could learn about PPP. Representatives of these countries share their experience, talk about the challenges they have faced, so that others could plan and implement PPP in their countries preventing potential failures and proceed with successful implementation of PPP projects. The global financial crisis hit the world in 2008 and affected implementation of PPP projects. In many countries, PPP projects were cancelled (Green C. J., 2011), nevertheless there were countries which continued and are continuing the projects that had been launched, thus improving their countries' development and implementing projects important to society. As country leaders are indicating, since the global economic crisis the demand for the PPP has increased (Developing Public Private Partnerships…, 2012). The amount of PPP operations, which have reached the final financial stage, totalled 6 billion EUR in the European market in the first half of 2012. Continuous PPP planning and evaluation is still being carried out, and it is reflected in the European Commission reports on the Internet (European Commission, 2012), manufacturing, and construction and automotive industries (European Commission, 2012).

Many studies on PPP have been conducted in the EU and throughout the world, whereas there is limited information about PPP projects in Latvia. Society is not informed about PPP, the regulation is weak; parties involved in PPP projects lack knowledge and skills in the processes of PPP project management.

No similar study has been implemented in Latvia market, and this is why we are unable to compare the results. These factors determine the topicality of the work. The aim of the research is to analyse the management processes of PPP in Latvia, evaluating expert references, and to find the answer to the research question – how process management is affecting PPP projects.

To achieve this goal, a number of challenges have been set and methods have been applied:

1) to explore the theoretical aspects of PPP management and perform analysis of literature and normative documentation for the conception of the situation;
2) to describe PPP experience in the EU countries using constructive and experience - based content analysis;
3) to analyse the PPP management processes in Latvia and to clarify experts' opinion about PPP

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development possibilities in Latvia applying interview study methods. In the interview, seven experts were involved who had been closely associated with the PPP projects or were participating therein (The Central Finance and Contracting Agency, Ministry of Finance of the Republic of Latvia; Joint-stock company „CATA"; Ltd „Wesemann"; etc.).

The study is based on the laws and regulations of the Republic of Latvia, statistical data, Latvian and foreign scientific works, publications in scientific compilations and periodicals, online materials available as well as unpublished business and conference materials. For the study, 143 sources were referred to in total. The data during the period 2010 - 2012 was used in the study.

Public and private partnership

The 21st century will hold far-reaching changes in socioeconomics. The government is introducing reforms to improve the economic situation thus ensuring the sustainability of the national economy development. State resources for the implementation of major public benefit projects are insufficient, thus the necessity for additional funding has increased. This is one of the main reasons why the government is turning to private sector partners to develop the social dialogue. A long-term cooperation is being built between the public and private sectors that implement PPP projects. Among European countries, the importance of PPP projects is increasing. To understand the situation and its process, it is essential to be aware of the legislative, institutional, and management aspects that characterise PPP projects. Theoretical aspects are studied through the content analysis. The authors analysed 22 literature sources that were published between 2010 and 2012. The authors have gathered the similarities of PPP and the definition of the PPP process and partner role in a result of the study, have established PPP partner benefits and summary of evaluation criteria of process management results.

The examined PPP definitions show that there is no single definition for PPP, comprising its wide range of economic activities. The authors suggest using T. Cellucci's definition that the private and public partnership is an agreement between the government agency (federal, state, or local) and the private sector. With this agreement, the skills and resources between the sectors (public and private) are shared, providing services or facilities available for the public use. Each party agrees to distribution of the additional resources when delivering services or equipment.

In PPP processes, the partners have several roles depending on the project: buyer or service provider, regulatory role of entrepreneurship (Grossman S.A., 2008), social or institutional role. While successfully entering into the roles and cooperating between the PPP projects, the partners are creating a product or service that meets the needs of society (Organisation for Economic…, 2012). The proper choice of the role and good management of the process provide the opportunity of achieving significant results that are beneficial to both parties (Robinson H., 2010). In such a way, the available resources are being combined thus providing higher returns together rather than each party working individually. Such cooperation is an effective tool to fight against the disadvantaged economic and social impact of the economic crisis. It is a means by which European social partners or employees are trying to help solve problems and to reduce the impact of the crisis, which is the priority of the Europe 2020 strategy (European Commission Notification, 2010). When creating a role, it is essential to know the processes of PPP management. The processes of PPP management are complex, and several authors' theoretical works, for example Geddes R.R. 2011; Christensen T., 2011; Yong K. H., 2010, confirmed that.

Research results and discussion

The discussed sources provide several definitions of the management of PPP process that generally emphasize the importance of process management per se, diverse procedure, and all partners' responsibilities for the process management (Dewulf G., 2012). The management of a process involves achieving of the result, control mechanisms, and each partner's personal responsibility for the achieving of the result. There are also definitions that do not repeat in other sources. The authors give their definition of the PPP process management - management of PPP process is based on the cooperation between the public and private sectors, which provides an effective result by carrying out a number of related events or activities with the beginning and end. It is a management tool where the knowledge, skills, tools, techniques, and systems of participant are used in the process to define the measures, control mechanisms, and processes with the aim to meet the requirements of the partners and the society.

The projects - prior to implementation and upon completion thereof - are being evaluated basing on different criteria. The authors of the study have summarized the most commonly used evaluation criteria of the results of management of PPP processes (Robertson S., 2010; O'Donovan D., 2010; Longa R. D., 2011; Barrera F. 2009; Robinson J.W., 2010; Cruz C. O., 2011) which would suggest that the following aspects should be taken into account when evaluating PPP processes: efficiency, investment of the partners, cooperation period, the result, compliance with national, regional and local development objectives, partners' experience, control mechanisms, and value for money.

The authors suggest assessing the results of the management process of PPP projects according to the following criteria: efficiency, collaboration time, control mechanisms, and the results. Experts recommend evaluating the achieved PPP project results and informing the society and private partners about it. To select these criteria, analysis of the literature and normative documentation was conducted including works of foreign scholars, publications in collections of scientific articles and periodicals, and materials available online. The evaluation criteria of the results of PPP process' management were selected from the sources of the criteria depending on the presented frequency, significance, and measurability thereof.

The authors included the importance of the criteria in the expert interviews, to check the theoretical knowledge in the practice of Latvia. The expert interviews indicate that the biggest obstacles for implementation of PPP are high proportion of shadow economy, poor normative

regulation, and the shortage of sufficiently qualified specialists.

1. The experience of the EU and other countries in implementation of public and private partnership

The majority of the EU Member States are applying negotiation procedures in the implementation of PPP projects, as required by the Directive 2004/18/EC (Directive 2004/18/EC, 2004) of the European Parliament and of the Council of 31 March 2004. The procedures coordinate the procedure of rights conferment for state contract conclusion for construction works, supply and service, in addition to traditional procurement procedures - for open and restricted competition. There are many examples of successful implementation of PPP projects applying the negotiation procedure. The following major PPP projects exceed 500 million euro.

— High-speed rail in France (Mohamed A.M.I., 2011) – one of the largest rail projects in Europe has been developed within the project. Project costs range from 1.2 to 3.4 billion euro. Within the PPP project, the railway was extended, access was improved, and travel time between Paris and Rennes was reduced for 37 minutes and between Paris and Nantes – for about 8 minutes. Concession contract is concluded among the partners.
— Road tax project in France (Jacob B., 2010) - this project is a part of Ecotaxe project based on the taxes for cargo vehicles. All cars heavier than 3.5 tons will have to pay tax for use of the national road, starting from time when project will be put into operation – in 2013. The toll for road use will be collected by GPS satellite system 170 GPS.
— Bordeaux high-speed rail in France (Morrison R., 2012) – it is the largest European PPP project. Its costs are 7.8 billion euros, and the concession agreement has been signed between both the partners for 50 years. In total, 340 km and 17 connecting lines were built within 4-year period.

In 2001, 84 projects reached their final stage with a total value of nearly 18 billion euro in Europe.

Both, academic and professional studies are united by the obstacle that critical factors, which significantly affect or may affect the functioning of the social partnership are identified during the studies. Mainly for the entrepreneurs and civil society, this is a commonplace, which is also called "smart philanthropy".

2. Normative regulation of public and private partnership in Latvia

In Latvia, the law on PPP (Public and Private Partnership Law, 2009) states that partners can be: a public partner and a private partner. A public partner can be a state as a legal entity of initial public rights or legal entity of secondary public rights, for example, a capital company, a municipality. A private partner is an applicant or single-purpose company, or joint company that has entered into the public and private partnership contract.

The Ministry of Finance has determined that, on behalf of the public partner, the representative of the public partner can do the necessary actions in the PPP project. A representative of the public partner (Ministry of Finance…, 2012) can be: direct management body; indirect administration; the board of a company; legal entity of private rights.

Until November 2012, in Latvia there have been 59 projects implemented (Ministry of Finance…, 2012), 19 are in the process (The Central Financial and Contract Agency, 2012), and 25 PPP projects are still planned (Ministry of Finance…, 2012). In Latvia, partnership between the private and public sector has enabled the implementation of a number of important projects, e.g. road reconstruction, reconstruction of heat supply system, construction and management of four pre-school educational institutions, housing construction, renovation and management of art school, introduction of photo camera, the Southern Bridge construction, and LLC Lursoft services. These projects, possibly, would not have been realized at all, or funding thereof would have been a long time waiting.

The Central Finance and Contracting Agency together with the Ministry of Finance indicates that one contract out of three projects is realized - the construction of pre-school educational institution in Marupe, Kekava, and Tukums. The RE (The Register of Enterprises) indicates that the contract on the supply of catering services has been implemented after the adoption of the law.

The PPP development policy in Latvia was transferred to the Ministry of Economics and the Ministry of Finance. Since 2009, with the adoption of the PPP Law, the Ministry of Finance and its subordinate body - The Central Finance and Contracting Agency - have become the responsible authority for the PPP projects. Since the update of the PPP, an ambitious work on establishment of appropriate legislation has been launched in Latvia. Currently, the legal framework for PPP defines Public and Private Partnership Law adopted in June 2009 (Public and Private Partnership Law, 2009). The work on the development of the law has already been launched in 2004, and it was carried out in several stages, reviewed in various editorial offices, therefore, the development of the law was prolonged.

The issues related to the PPP in Latvia are governed by the PPP law and other normative documents: Public Procurement Law (Public Procurement Law, 2006), State Administration Structure Law (State Administration Structure, 2003), Law "On State and Local Government Shares and Capital Companies" (On State and Local Government…, 2002), and the Concessions Law (Concession Law, 2000).

In 2009, amendments to the PPP Law were made, and a new concept of "competitive dialogue" was introduced. It differs from the traditional open and closed tender procedures, ensuring necessary flexibility for the state and private partnerships. According to the tender procedures, the public partner has to decide what infrastructure object to build or what kind of services to provide, and the private partner only has to implement intention of the public sector's partner.

Conclusions, proposals, recommendations

In Latvia, there is not a clear stand for the PPP; the law of the PPP is not being applied. Having evaluated PPP project models, the authors conclude that concession agreements are a form that is most frequently implemented in Latvia. The second most used PPP model

is establishing of a joint venture. A consequent lack of national policy implementation according to PPP and a high proportion of shadow economy can explain the reason for slow implementation of PPP projects. Official institutions of Latvia government cannot provide a single answer on the number of projects implemented after adoption of the PPP Law. Basing on the experts' replies, the biggest obstacles observed in PPP projects are the high proportion of shadow economy, weak regulations, lack of proficiency in legislation, lack of qualified human resources, and insufficient knowledge in the field of PPP legislation. The authors conclude that the PPP is being identified as a potential way to achieve sustainable development and a positive impact on the national economy.

The government has to improve the legislation and has to define in the Regulations issued by the Cabinet, which state or local government bodies as well as their capital companies may implement PPP. The Cabinet, the Ministry of Finance, and the Central Finance and Contracting Agency should hold a mutual discussion and gather information on all of PPP projects frozen, and, in cooperation with the project submitters, have to assess the usefulness of the project implementation in the future. Public partner, performing purchase for the PPP project needs, has to adapt the competitive dialogue procedure before each PPP project in order to improve the PPP process. The municipalities of Marupe, Kekava, and Tukums, which have successfully implemented PPP projects, should inform society and any potential stakeholders about the process and management of the PPP project.

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EUROPEAN UNION FUNDS IN THE PRO-ENVIRONMENTAL DEVELOPMENT OF POLISH RURAL AREAS

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Abstract. This study presents selected possibilities of supplementing pro-environmental actions in Polish rural areas with the European Union funds, the scale of funds Poland has received within selected examples of the EU programmes, and the opinion of rural commune local governments on the subject of their involvement in the acquisition and use of the EU funds on pro-environmental goals. In the past decade, Poland received significant financial support from the European Union and the funds allocated towards the development of rural areas arouse the interest of potential beneficiaries. The allocation of funds towards pro-environmental development of such areas depends largely on local governments which are the most capable of assessing the needs of the local community in this respect. The EU funds in rural areas were and still are mostly appropriated to improvements in water and sewage infrastructure which is an evidence of still existing requirements in this area; however, there is an increasing amount of projects associated with carrying out contemporary rural area functions (especially in the delivery of free goods).
Key words: EU funds, pro-environmental development, rural areas.

Introduction

The policy of the European Union and its member states, including Poland prescribes numerous tools which are essential for carrying out the concept of sustainable development of rural areas. The EU Common Agricultural Policy evolves in the direction of multifunctional rural development with a consistent and sustainable development of agriculture and rural economy, social progress, and positive impact on the natural environment (Kolyska J., 2009).

The quality of the natural environment is one of the most important and, at the same time, most difficult challenges for rural commune local governments. Despite the fact that environmental issues are first issues on the list of communes tasks included in the *Commune Local Government Act* (Act, 2001), the degree of introducing investments aimed at sustaining or improving the condition of the environment is mostly determined by the available financial resources. The European Union subsidies whose beneficiaries are communes as well as other entities operating in such areas like farmers, entrepreneurs, other inhabitants etc. are a significant source of support for rural communes. The diversity of programmes, activities and possible goals makes it possible to involve all of the above mentioned groups in the process of shaping and protecting the environment. However, the involvement of the communes local governments is an essential condition which shall be met to improve the competitiveness of rural areas and the quality of life of their inhabitants. This important role of local governments is primarily a result of their specific decision making authorisation and access to various financial, administrative, planning, and education instruments which allow coordinated operations initiated by different entities.

The aim of this study is the presentation of selected possibilities of supporting pro-environmental activities in Polish rural areas with the European Union funds, the scale of funds allocated to Poland as part of selected examples of the EU programmes and the opinion of rural commune local governments on the subject of their involvement in the process of acquisition and allocation of the EU funds on pro-environmental goals.

Natural environment of rural areas in the EU programmes

Environmental protection in rural areas is an exceptionally significant element of the EU programmes, carried out in the pre-accession period – an example of which is SAPARD (*Special Accession Programme for Agriculture and Rural Development)* - as well as during Poland's membership in the European Union. In the programming period of 2004-2006, Poland experienced the completion of investments carried out as part of the SAPARD programme and the initiation of new programmes supporting pro-environmental activities in rural areas such as *Sectoral Operational Programme Restructuring and Modernisation of the Food Sector and Rural Development (*SOP RMFRD)*, Rural Development Plan for the years 2004-2006* (RDP), or *Integrated Regional Operational Programme* (IROP). The RDP allows improvement of environmental qualities of rural areas mainly through actions carried out in agriculture, e.g. development of environment-friendly farming, maintaining the landscape qualities of rural areas and ensuring sustainability of agricultural land use, promotion of agricultural production systems conducted in accordance with environment protection requirements, forestation of farmlands with low agricultural utility, adjustment of farms to the EU standards in the area of environment protection, public health, and health and well-being of animals (RDP, 2004). The SOP allows carrying out projects in the area of countryside restoration, preservation and protection of cultural heritage, protection of natural resources in rural areas, and development of agriculture (diversification of its operation, investments increasing

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food safety, investments towards environment protection, improvement of the conditions and well-being of animals, and increasing hygiene standards of farming production (SOP RMFRD, 2004). In the case of IROP, two specific actions were significant to the Polish countryside: 1) *Environment protection infrastructure* – whose ultimate beneficiaries could be local governments, among others, and the subsidies could be allocated towards projects related with water and sewage treatment requirements, waste management, air quality improvement, flood prevention, environment protection management support, and renewable energy resource use; 2) *Rural areas* – the main goal of which was *preventing the social and economic marginalisation of rural areas and small towns of up to 20 000 inhabitants*, through, e.g. projects in the area of disposal and treatment of sewage, water supply and consumption, use of renewable energy sources, air quality improvement, waste management, or flood prevention (IROP, 2007).

In the years 2007-2013, the cohesion policy in the area of protection and improvement of the state of environment is carried out primarily thanks to the European Regional Development Fund (ERDF) – thanks to which rural areas are able to carry out projects, e.g. as part of Regional Operational Programmes and Cohesion Funds (CF) – which can be used to co-finance large investment projects in the area of environment protection undertaken by local government units, commune associations, or other entities like municipal enterprises owned by the commune (Ministry of Regional Development, 2008).

In the current programming period, however, the most important EU programme which enables multi-directional investments in rural areas and farming is the *Rural Development Programme for 2007-2013* (RDP). Improvement of the natural environment and rural areas is one of the priority axes of the EU's policy for the development of these areas, the so-called environmental axis - besides improvements in the competitiveness of the agricultural and forest sector (the so-called economic axis), improvement of the quality of life in rural areas, and diversification of rural economy (the so called social axis) and the Leader axis (RDP, 2011). Activities aimed at protecting the natural environment and improving the quality of life of rural area inhabitants may be carried out via projects directed towards restoration of the countryside and improvement of the state of cultural and natural heritage, undertaking non-agricultural economic operations in rural areas, creating local action groups (LAG) or international partnership. Regional Operational Programmes also include priorities and activities which allow improvements to the state of the natural environment in rural areas, e.g. Priority III of the *Wielkopolska Regional Operational Programme 2007-2013* titled *Natural Environment* prescribes carrying out projects aimed at providing rural areas with sanitary and waterworks infrastructure, regulating waste management, restoring degraded natural habitats, and introducing and promoting protected areas, including NATURA 2000 (WROP, 2011).

Financial support of actions in favour of environment protection in rural areas

As part of the SAPARD Programme there were 22 775 projects carried out with a total amount of reimbursement of approx. PLN 4.5 billion (including PLN 3.4 billion from the EU)[2] by the end of 2006. It allowed carrying out projects in the following areas:

— *Disposal and treatment of municipal sewage* – the EU co-funding in the amount of PLN 723.5 million - 6 198 km of water conduits, 189 collective sewage treatment plants, and 2 403 farm sewage treatment plants were built within this action;*Municipal waste management* – projects co-financed by the EU in the amount of PLN 13.89 million enabled creating, among other things, 23 solid waste disposal sites; *Energy supply using renewable energy sources* – completed projects with PLN 5.15 million of the EU co-financing, most of which were associated with the use of local, renewable energy sources (Ministry of Agriculture and Rural Development, 2007).

During the course of the SOP RMFRD Programme over 50 thousand contracts for nearly EUR 1.2 billion were signed with beneficiaries (the European Commission reimbursed EUR 942.2 million). The largest number of projects was carried out as part of the *Investments in agricultural farms* Action (48.2% of the total projects carried out) – the average project value was approx. PLN 100 000. The projects were primarily associated with improvements in production organisation – about half of the projects in total and half of the qualified costs. In total, 94% of the projects carried out regarded farms of an economic size over 4 ESU[3] (Ministry of Agriculture and Rural Development, 2010). Apart from projects directly related with agriculture, the SOP RMFRD allowed to carry out, among others, the following projects:

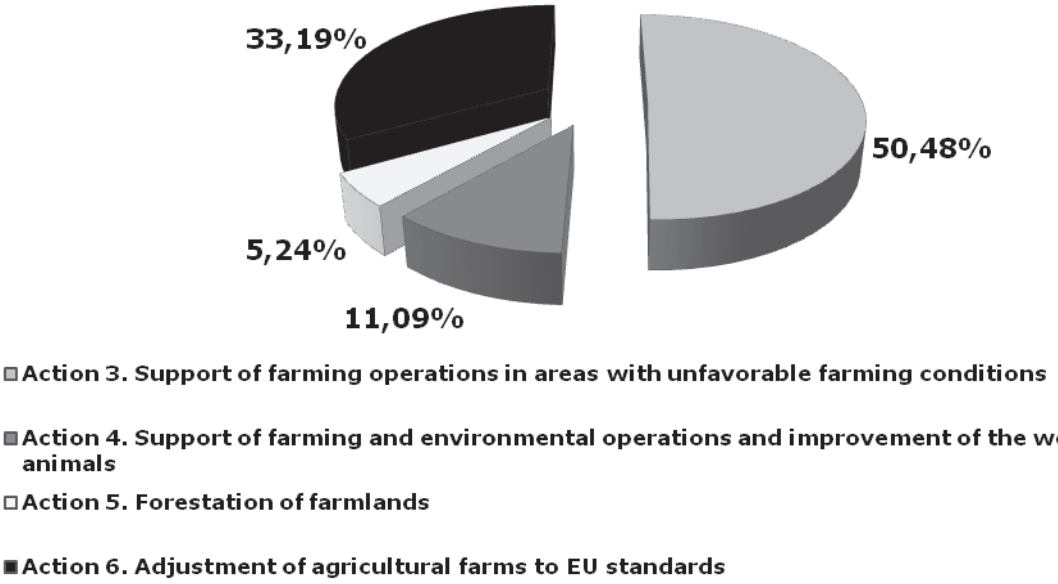
— related with rural restoration, and preservation and protection of cultural heritage – completed implementation of over 2 000 projects, for which the amount of co-financing from the EAGaGF reached PLN 395.6 million (with tangible effects such as construction or reconstruction of elements of small touristic and recreational infrastructure, development of village centres, parks, green areas and other leisure locations);

— in the area of diversifying agricultural activity and protection of natural resources in rural areas – completion of over 4 000 projects with the EU co-financing in the amount of PLN 196.2 million, and the investments (associated with, e.g. minor services to the inhabitants, services to agriculture, production of energy materials and biomass) allowed maintaining or creating nearly 9 thousand workplaces (SOP RMFRD, 2004; Ministry of Agriculture and Rural Development, 2010).

The amount of funds allocated to beneficiaries of the RDP 2004-2006 activities reached PLN 14.2 billion out of which PLN 11.3 billion were funds from the EAGaGF. Support given as part of the four actions within Priority B, *Sustainable Development of Rural Areas*,

[2] Out of the general number of Projects, 1238 projects were co-financed from the Rural Development Plan's 2004-2006 budget (moved with approval from the European Commission), while part of the project was financed from SAPARD as well as the RDP funds (Ministry of Agriculture and Rural Development, 2007)

[3] A unit presenting the economic size of an agricultural farm, calculated based on the standard direct surplus



Source: author's study based on the Ministry of Agriculture and Rural Development, 2009

Fig. 1. **Structure of resources spent on specific actions within Priority B of the RDP for the years 2004-2006 *Sustainable Development of Rural Areas***

had the most significance to the state of the natural environment. Funds allocated for co-financing projects in the area of this Priority constituted nearly 52% of the total resources available in the RDP, while their distribution among specific actions is presented in Figure 1.

The significance of the EU financial support to rural areas within the IROP can be shown by presenting the tangible effects (pro-environmental projects) for Action 3.1. *Rural Areas*. Since the beginning of the Programme's implementation in rural and small town areas, a total of 2 thousand km of water conduits used by over 120 thousand inhabitants, and 70 sewage treatment plants were built and modernised, in addition to carrying out 13 projects in the area of selective waste disposal and recycling, and municipal waste management.

There were no projects carried out as part of this Action related with building electric power plants using renewable energy sources. There were, however, projects whose range included the use of RES, e.g. related with the modernisation and redevelopment of heating systems of the schools or commune offices to those using biomass or biogas (Ministry of Regional Development, 2010).

The Rural Development Programme for 2007-2013 is the main source of support for the development of Polish rural areas in the programming period 2007-2013. It is financed from the EU budget (European Agricultural Fund for the Development of Rural Areas – EAFDRA) and domestic public funds. Despite the fact that the expected total sum of co-funding for rural areas in the programming period 2007-2013 would be EUR 17.2 billion (including over EUR 13,.2 billion from the EU budget), the actual funds at disposal are about EUR 14 billion – the remaining amount constitutes undertakings from the years 2004-2006 entered into as part of the RDP 2004-2006 (Jablonska-Urbaniak T., 2009).

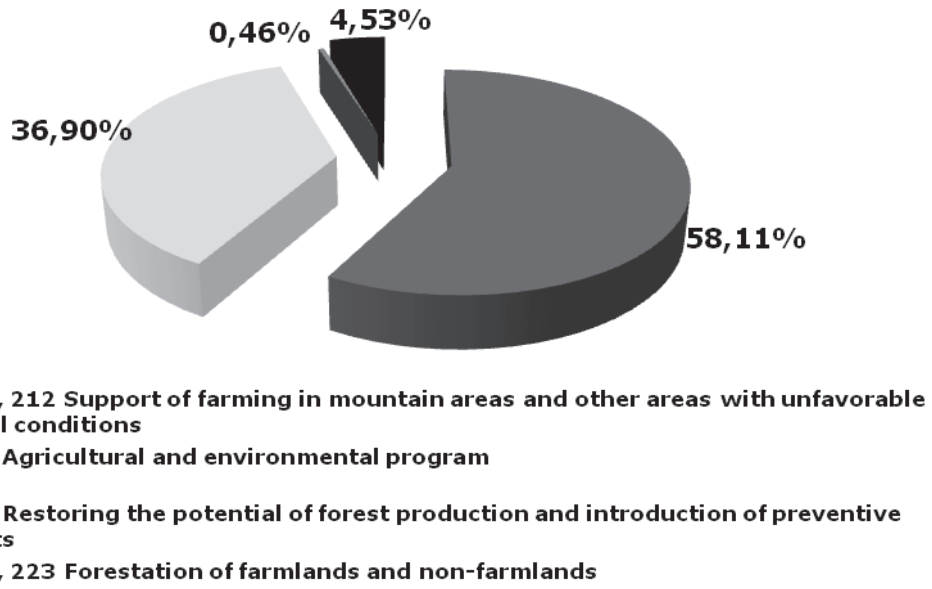
By the end of 2011 the Agency for Restructuring and Modernisation of Agriculture carried out payments of nearly PLN 30 billion, over half of which served actions within Axis 1 *Improvement of Competitiveness of the Farming and Forest Sector*, nearly 40% went towards actions within Axis 2 *Improvement of the Natural Environment and Rural Areas*, 10% went to the projects carried out within Axis 3 *Quality of Life in Rural Areas and Diversification of Rural Economy*, and finally 1% - towards Axis 4 *Leader* (Ministry of Agriculture and Rural Development, 2012b).

The environmental axis in the European Union received 44% of the EAFDRA resources, while Poland intends to spend 32.21% of public funds allocated within the RDP 2007-2013 for the implementation of actions in this area - the share differs in Europe: from 23% for Romania to 81.36% for Finland (Scianski P., 2010). By the end of 2011, Poland spent slightly over PLN 11 billion on actions within Axis 2. The distribution of these resources between different actions is presented in Figure 2.

The amount of payments disbursed by the end of 2011 constituted 65.6% of the planned EAFDRA budget in case of the Action titled Support of Farming in Mountain Areas and Other Areas with Unfavourable Agricultural Conditions. This percentage, in relation with the Action *Agricultural and Environmental Programme* was 43.6%, in case of the Action *Restoring the Potential of Forest Production* - 9.6%, and for the Action *Forestation of Farmlands and Non-farm Lands* - 28.7% (Ministry of Agriculture and Rural Development, 2012b).

Rural communes in the process of applying and using the EU resources supporting pro-environmental investments

As it was mentioned earlier, significant financial resources from the European Union budget were expected for Polish rural areas as part of many different programmes in every programming period. What is



Source: author's study based on the Ministry of Agriculture and Rural Development, 2012b

Fig. 1. **Structure of resources spent on specific actions within Axis 2 of the RDP for the years 2007-2013 Improvement of the Natural Environment and Rural Areas**

interesting, however, is how rural communes – the potential beneficiaries of many such actions, perceive the programmes and funds provided for this group of recipients and how they take advantage of the resources available to them. Therefore, rural communes in the Wielkopolskie region participated in a survey. A questionnaire was sent to 117 respondents (exhaustive study), and the response rate was 42%. Two out of the 49 received questionnaires were discarded due to formal and substantive reasons.

As the study shows, applying for financial support from the EU is the most common way for local governments of the Wielkopolskie region's rural commune to acquire additional funds for investments in the area of environment protection – 39 out of the 47 respondents (83% of the surveyed population) have made such attempts in the years 2004-2009. Despite this being a high percentage of the surveyed communes, approximately half of them indicated difficulties in acquiring the support. Likely reasons for this problem being highlighted so often can be found in the relation between the amount of positive decisions to grant communes financial support and the amount of applications submitted by the respondents (approximately 3/4 in the years 2004-2009).

As much as 1/3 of submitted applications were such that the communes forwarded to the Voivodship Fund for Environment Protection and Water Management (Table 1). It is, however, difficult to assess how significant part of these applications related with funds acquired from the European Union, as the VFEPWM provides financial support on pro-environmental actions within national as well as the EU funds (as an intermediary or implementing institution).

Communes have shown significant interest in the possibility of acquiring financial resources from the Rural Development Fund for the years 2007-2013 – a fifth of the applications were submitted to competitions announced as part of that Programme.

Most often the acquired financial resources were allocated to building (developing) sewage systems – such purpose was declared by nearly 60% of communes. Slightly above 17% of the surveyed communes invested the acquired funds into waterworks systems, and nearly 15% - in sewage treatment plants. Some rural communes submitting their applications for support of pro-environmental actions in their area indicated several activities which can be carried out as part of a certain project, e.g. building (development, modernisation) of waterworks, sewage systems and sewage treatment plants, building (development, modernisation) of waterworks systems and water treatment plant, or the development of sewage networks and building backyard sewage treatment plants[4].

As much as 58 (84%) out of 69 projects, in which the responding communes indicated sanitary sewage systems as the subject of investment, were carried out as part of three EU programmes: SAPARD, IROP and RDP for the years 2007-2013. The needs of the surveyed rural

[4] In terms of investment targets entered into as part of projects carried out with the European Union support, Wielkopolska does not differ from other regions of the country. Based on studies conducted in fifteen communes of the Warminsko-Mazurskie region M. Olinski (2007) showed that the largest value share in environmental protection investments in the years 2004-2006 was held by projects associated with sewage networks and sewage treatment plants (nearly 93% of all analysed investments). For the years 2007-2013, the surveyed communes also primarily included such projects in their development plans. I. Otola (2009), on the contrary, showed in her studies covering the Slaskie region's communes that the largest number of projects (nearly half) carried out in the years 2004-2007 using the EU funds related with the natural environment. Most of them included construction of sanitary sewage networks.

Table 1

Programmes and institutions offering financial support for pro-environmental actions used by the surveyed communes in the years 2002-2009

Item	Number of applications	Percentage (all submitted applications = 100%)
SAPARD	24	10.4
Sectoral Operational Programme Restructuring and Modernisation of the Food Sector and Rural Development 2004-2006 (SOP RMFSRD)	5	2.2
Integrated Regional Operational Programme (IROP)	40	17.3
EOG Financial Mechanism and Norwegian Financial Mechanism	2	0.9
Rural Development Programme for the years 2007-2013	47	20.3
Infrastructure and Environment Operational Programme	2	0.9
Wielkopolska Regional Operational Programme for the years 2007-2013	23	9.9
Voivodship Fund for Environment Protection and Water Management (VFEPWM)	77	33.3
Other Special funds*	8	3.5
Other programmes and institutions**	3	1.3
Total	231	100.0

* Other special funds include the European Fund for the Development of Polish Rural Areas, National Fund for Environment Protection and Water Management, Farmland Protection Fund
** Other programmes and institutions: Cohesion Fund, Marshal Office, Voivodship Contract

Source: author's study based on survey responses

communes in the area of basic environment protection infrastructure are visible from the beginning of the analysed period, i.e. the years 2002-2003, during which the communes commenced spending the resources allocated to Poland within pre-accession funds.

The surveyed communes acquired resources for the construction (development) of sewage systems primarily from the SAPARD and RDP for the years 2007-2013 (43% of the projects prepared with that aim). A similar situation was recorded in regards to water treatment stations. The IROP funds were most prominent in the improvement of sewage management, i.e. building (development or modernisation) of sewage treatment plants and increasing the length of sewage systems in the communes.

The large interest of rural communes in funds from the current programming period for investments in water and sewage infrastructure is evidence of the respondents' still existing needs in this area. The programmes functioning in the programming period 2007-2013 provide an opportunity to carry out also other environmental goals than the primary ones, thus, to a very small degree but still, the communes prepare and carry out projects aimed at improving the inhabitants' quality of life and increasing the communes' capabilities to provide different environmental services.

As it can be concluded from the information submitted by the surveyed communes, the total value of projects co-financed from the EU funds in the years 2002-2009 exceeded PLN 312 million, while the financial support value – nearly PLN 180 million. The average value of a single project was PLN 2.5 million and the average value of co-financing allocated to one project – PLN 1.35 million. Within the specific programmes, the average co-financing level was varied: it was PLN 7.6 million for the Wielkopolski Regional Operational Programme, it reached PLN 2.1 million for the RDP 2007-2013, it was PLN 1.4 million in the case of the IROP, and the value reached PLN 550 thousand for the SAPARD.

In rural communes one can observe certain tendencies in the use of EU funds. Over the years during which the EU support was available, the funds were increasingly often allocated to the so-called "soft projects" which resulted in a decreasing share of financial investments from the EU in the investment expenses; in 2008, this percentage was nearly 5% in rural communes. In the years 2002-2008, the share of investment expenses in projects financed from foreign sources systematically decreased in rural communes from 99.2% in 2002 to 65.5% in 2008.

Conclusions

Poland has received significant financial support from the EU within the past decade. The funds allocated for the development of rural areas invoke large interest of potential beneficiaries, which is evidenced by indicators related with the RDP for the years 2007-2013; over 77% of the budget for that programme was already contracted

by 15 June 2012 (Ministry of Agriculture and Rural Development, 2012a).

The use of funds for the development of rural areas mainly depends on local government entities which should decide on the directions of local economic development. The current programming period ensures a chance to acquire funds for diverse actions which serve environmental protection purposes and allow rural communes to carry out more modern functions beside their most important but not the only one, which is agricultural production. It is, however, difficult to expect communes indicating deficiencies in the length of sewage networks or amount of sewage treatment plants to direct their interest towards other pro-environmental actions. One has to hope that as rural areas become saturated with the basic environmental protection infrastructure, such aspects as the broadly understood rural restoration, improvement of the state of cultural and natural heritage, landscape and spatial order, or increased use of renewable energy sources in rural areas will become a more common subject of commune local governments' applications for the EU funding.

Poland has had many barriers associated with the introduction of the EU programmes such as frequently changing guidelines and procedure, problems associated with reporting and applying for co-funding, issues related with control, irregularities in terms of public procurement law, or imperfections in introducing the Information Monitoring and Control System (IMCS). However, the current programming period shows that many of these deficiencies have been eliminated. The beneficiaries acquired experience also makes the process of application and uptaking of the EU funds easier for subsequent programmes.

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CLUSTER AS HARMONIOUS COOPERATION OF THE BUSINESS MODELS OF WELLNESS TOURISM MEMBERS

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Abstract. The article presents the theoretical analysis of cluster and tourism cluster definition as well as the analysis of cluster members; and furthermore it highlights the particular features of cluster. The cluster concepts have been revealed indicating their characteristics and relationship between them. Presumptions for the cluster formation and benefit for business are emphasised in the research. The article focuses on the analysis of cluster structure in the tourism industry highlighting the basic components and indicating the tourism cluster forms. The model of wellness tourism cluster possible to implement in the Western Lithuanian region and the theoretical insights acquired using systemic analysis for the formation of tourism cluster using cooperation of business models are presented at the end of the article.
Key words: tourism cluster, business model, interorganisational formations, wellness tourism.
JEL code: M1.

Introduction

Tourism influence on regional economy rises gradually and the rise of the global economic value is implicated at the same time. Regional economic system, its enhancement and increasing are based on the cluster principle where the essence is creating of higher value in the network of unified enterprises. Formation of the tourism clusters in the particular region provides a competitive advantage for the enterprises in that region against the enterprises that do not belong to cluster (Porter M., 2000; Rocha O., 2004; Engelstoft S., 2006); and this situation is a very important goal for enterprises, government and other organisations. Initiative of cluster formation indicates new guidelines for the economic policy that are based on macroeconomic stabilisation, privatisation, and markets liberalisation in the modern countries. Cluster phenomenon has become the research object for various scientists in production, services, and other sectors (Dwyer L., 2000; Jackson J., Murphy P., 2002; Breda Z., 2004; Capone F., 2004; Jucevicius R., 2006, 2009; Flowers J., Easterling K., 2006; Hunt M., Crompton J., 2008; Fereira J., Estevao C., 2009).

Cluster formation and development have been analysed widely in scientific literature but occurrence of business models complementarities and their influence on tourism are not analysed so widely. There is no detailed definition of clusters and tourism clusters, explanation of characteristics, analysis of structure, and in-depth analysis of tourism clusters as business models complementarities.

Research object – tourism cluster.

Research aim – to reveal the aspects of cluster formation as harmonious cooperation of the business models of wellness tourism members.

Research tasks:

1) to present explanation of cluster and tourism cluster definitions: features and margins;
2) to reveal the forms of tourism cluster, formation presumptions and benefit for business;
3) to discuss the structure and models of cluster;
4) to evaluate opportunities for wellness tourism cluster formation in the seaside region of Lithuania.

Methods: systemic analysis of the scientific literature, comparison, and generalisation.

1. Explanation of the tourism cluster definition

Cluster is often considered as the business model type of the 21st century. Business model is defined as a process of value creating, business design, networking, and profit generation logic. Cooperation of business models makes presumptions for cluster formation that ensures effective knowledge transformation into increasing economic value and at the same time it increases competitiveness not of only one enterprise but the whole system, concentrates complex competency, and it is considered as a possibility (unifying enterprises) to compete on the domestic and international market (Kinderis R., 2012). Generally, clusters are perceived as the interorganisational formations or accumulation of enterprises, scientific and governmental institutions in the particular geographical region. Gulati R., Sytch M (2007) and Pesämaa O., Hair J. (2008) note that interorganisational business relationships and formations, such as clusters, have been formed due to creation of high value added and cooperation effectiveness through the performance of the interorganisational obligations that are imposed by mutual trust and individual benefit.

The concept of tourism cluster is related with the specific characteristics of tourism activities and tourism product. Tourism product comprises physical environment and members of social environment (some enterprises), because it is one of the conditions for its formation and performance. Tourism product is like a set of services and goods sold in the particular region in order to satisfy tourists' needs. Tourism activities may be characterised as cluster as well: complementarities and mutual dependence among tourism subjects in the particular region; and cultural, natural, and social resources. There is no determined concept of cluster and its definition. A research on explanations of tourism clusters analysing

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tourism cluster concepts provided by the scientists was carried out in order to present detail essence of the tourism cluster (Capone F., 2004; Novelli M. et al., 2006). The following characteristics of tourism cluster dominate in the analysed concepts mentioned by the scientists: a group of enterprises creating a tourism product; natural, cultural and social resources of the particular region; infrastructure of the particular region; specific activities of tourism sector; attractiveness of geographical region as well as competitiveness, stable economy and culture, life quality and systemic relations among them. However, the scientists (Brown K. and Geddes R., 2007) note that perception of the tourism cluster and its formation requires wider attitude and bigger number of members as usual. According to them, the state's government has to support the programmes for the private investments flow into creation of the tourism infrastructure of the particular region, to promote that region and to ensure its competitiveness. Relationships among enterprises and institutions inside the cluster are frequently mentioned in the explanation of the above-mentioned concepts provided by the scientists, and these relationships may be perceived in two ways (Rodrigues A., 2001):

1) horizontal relationships – establishing of the strategic alliance, when it is possible to have the agreements of two types: a) an agreement among enterprises with the same basic activity (accommodation, entertainment, catering); and b) an agreement among enterprises that satisfy the same needs of customers but offer different products (tourism services);
2) vertical relationships – creation of the strategic networks when relationships among the partners have been created in order to develop a particular product or provide service for the others under their interim agreement and payment.

The above-mentioned relationships show inner configuration of enterprises and institutions that include: a) tourist destinations not for local people; b) concentration of tourist enterprises: restaurants, accommodation businesses, transportation services, travel agencies etc., c) sectors supporting tourism services; d) reasonable and not expensive infrastructure (roads, energetic, health services etc.); e) enterprises and institutions that provide specialised information, financial support or education; f) local business agents; and g) governmental institutions that influence agglomerations of tourism industry.

According to Jucevicius R. (2009), considering the margins of cluster it is important to perceive the structural composition of cluster. It is not universal but it is possible to distinguish the elements that form cluster and tourism cluster as well: core with supporting activities and infrastructure necessary for its functionality, utilities; 'soft infrastructure'; and 'hard infrastructure'.

Core is usually made of essential cluster enterprises and income; and welfare of the cluster members basically depends on them. These enterprises create total and main tourism product.

Supporting (utility) activities (B2B) – all activities, directly or indirectly supporting activities inside the cluster. These activities might include providing of specialised equipment, components, raw materials, and other services.

'Soft' social infrastructure includes such members as professional schools, higher education schools, institutes, professional associations, trade unions, municipality structures, non-governmental organisations etc.

'Hard' physical infrastructure includes all 'material' elements of infrastructure such as roads, ports, public and telecommunication connections; without them it is difficult to imagine efficient business.

The best way to get familiar with cluster is to find out its most important and general features. Cluster is a quite wide concept, so it is necessary to distinguish some basic features that allow recognising it. The most important cluster features include geographical concentration. Clusters are made of the competitively successful business entities and organisations; clusters include rather big number of enterprises/organisations; similar clusters in different countries have similar features but they are not the same; clusters have margins that are clearly but not so easily identified; clusters rarely fit into standard classification systems; clusters are self-organising formations; and clusters stimulate cooperation of enterprises.

2. Formation and benefit of tourism cluster

Costa R. (2005) relates the tourism cluster with tourism product and tourism destination and notes that its development includes the following components: fixed elements (accommodation and catering); mobile elements (services of tour operators: transportation of passengers; car rent etc.); and dynamic elements (services of leisure organisation, cultural and sports events). *This scientist distinguishes the tourism cluster origin presumptions*: competitiveness of tourism businesses; favourable geographical location; necessary natural and cultural resources; hospitality; partners' accessibility; variety of partners; and formal and non-formal relationships among partners. *While clusters have been developed, it is worth to pay attention at important specific statistical criteria and factors*:

— turnover of the tourism sector in a region, comparing turnover of the region on the national level;
— number of workers in the tourism sector;
— higher than the average growth in the tourism sector (annual data);
— growth of small size start-ups;
— focusing on business units, which have business development competences in the particular region;
— physical proximity (geographical concentration).

As Iordache C. et al. (2010) have noted clusters usually occur in the tourism sector in the following forms:

— geo cluster – spatial cluster of economic activity (starting with local, e.g. mountain tourism cluster, coast tourism cluster up to global, e.g. cosmic tourism cluster type);
— horizontal cluster forms when the particular industry or sector might be included into cluster, which is a member of other clusters (e.g. hotel chains might be included into the airlines chain business model);
— vertical cluster – connection of various stages of different tourism services providing process into one common process;
— side cluster forms when different business sectors are connected with the existing cluster, in this

way the conglomerate has been formed (common economic effect appears);
— technological cluster forms when cluster is formed using the same technology (e.g. cluster of tourism services reservation systems);
— concentrated cluster – cluster when its enterprises concentrate on own cooperation into the main cluster's enterprise (science or technology enterprise).

The above-mentioned components, criteria, and particular presumptions might help form optimal cooperation, trust, and competitive relation among various business branches and clusters of their business models. Navickas V. and Malakauskaite A. (2009) note that interorganisational tourism sector formations operate through the synergy principle, i.e. their generated value added obviously is higher compared with the value added created by individual enterprises of tourism sector. It allows presumption that loss of one member would result in a significant decrease of tourism products and services supply; furthermore, the rest enterprises and organisations would face difficulties satisfying customers' expectations.

Complementarities of production and geographical proximity stimulate formation of tourism clusters, this process commonly uses the implementation of innovations. Hunt M. and Crompton J. (2008) distinguish two types of the tourist objects attractiveness using visitors (tourists) aspect: similarity and complementarities (without specification, which means similarity among similar attractions). According to them, the complementary objects attract more visitors due to competitive pricing, possibility to choose object groups, visiting forms and so on compared with similar objects. Hunt M. and Crompton J. state that complementarities of tourist objects attractiveness mean matching of the different objects and mutual supplementing.

Porter M. (2000) notes that cluster influences tourism business sector and its competitiveness in three dimensions: productivity, innovations, and starting new businesses (entrepreneurship).

Dimension 1 – clusters and productivity. Productivity of cluster enterprises is higher than for the enterprises that are not included into cluster, because the cluster enterprises are able to:
— manage the specific information using less expenses; this information might give competitive advantage in activity;
— act in a more profitable way than other enterprises, because they have more opportunities to invest into equipment, modernisation of work environment etc.;
— acquire better access to specialised and qualified labour force;
— use public services and infrastructure, which cannot be easily used by other enterprises;
— enter faster and more successfully into specific new markets, because their reaction is faster comparing with enterprises that operate separately;
— supplement each other, because they belong to the same value creating network;
— liaise with each other through complementary goods or services and common marketing;
— negotiate more powerfully when entering into supply agreements than independently acting enterprises.

Dimension 2 – clusters and innovations. The cluster's ability to stimulate innovative activities among cluster members and increase their competitive advantage on the market is considered as the basic reason for attractiveness and popularity. Innovations form an integral part in the tourism sector but they are more complicated to recognise and officially establish than in case of classical production. Besides that, in any case, clusters stimulate development and spread of innovations, help implement innovations faster, and offer wider communication possibilities for own members creating official and non-official information transfer channels.

Dimension 3 – clusters and entrepreneurship (new businesses). Clusters stimulate establishing of new enterprises and expansion of new business ideas. People working in cluster enterprises have better opportunities to identify gaps in enterprise activity or new niche markets; although, enterprises have better conditions for business financing and expansion. Furthermore, the existing clusters stimulate the establishing of new businesses in that geographical location (Nadaban M., Berde A., 2009).

3. Models of tourism cluster

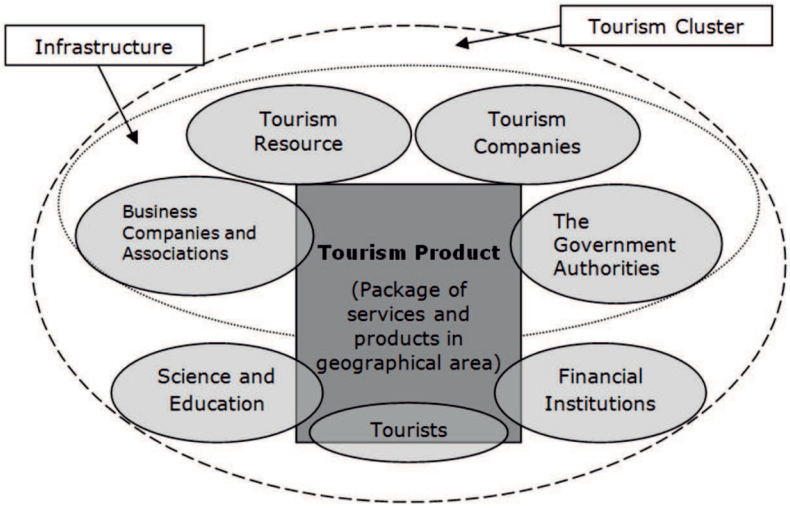
Development of tourism business depends not just on the attractiveness of basic tourism destinations and services provided there like accommodation, catering, transport, information, comfort etc. Unfortunately, not all regions are appropriately prepared to expand tourism services and increase competitiveness. Adequately prepared regions have attractive cultural, natural, and social resources for tourists; infrastructure is convenient for exploitation of the mentioned resources in order to ensure high quality and sustainable services. The reliable marketing strategy has to be established and implemented; it could help sell attractive, unique, and competitive tourism products in that region.

Cunha S. et al. (2005) present the model of tourism cluster focused on a tourism product. It is comprised of the set of basic and additional services (accommodation, catering, information providing, trip organising, and other services and goods (usually souvenirs)). That set might be formed when the mentioned services and goods interact and there are additional business associations, science and finance institutions, government institutions, and tourists.

The model of tourism cluster might be found in the Global Report on Competitiveness in 2006-2007 (World Economic Forum, 2006); its structure was similar to the model prepared by Cunha S. et al. The difference is that the tourism services additionally may be divided into services and goods, which directly and indirectly are related with the tourism product.

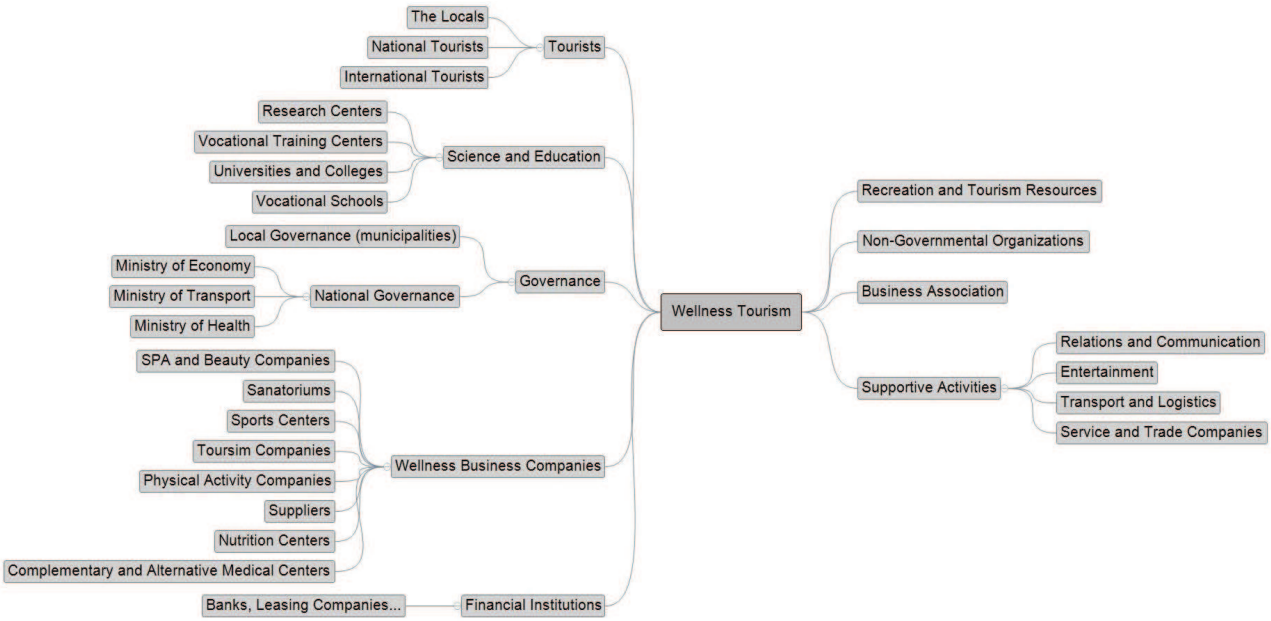
Navickas V. and Malakauskaite A. (2009) present the cluster model of tourism business sector, this model is focused on the tourism destination that includes enterprises providing tourist services (accommodation, catering and special services providing enterprises); other services providing enterprises and enterprises selling goods (transport, links, shops); tourism infrastructure; academic world, government institutions; travel agencies and tour operators; associated organisations, and recreation and health institutions.

Generalising the above mentioned tourism cluster models, it is possible to note that their structure has the



Source: authors' construction based on Cunha S., 2005; Navickas V., Malakauskaite A., 2009; World Economic Forum, 2006

Fig. 1. **Model of the tourism cluster**



Source: authors' construction

Fig. 2. **Lithuanian seaside wellness tourism cluster**

basic margins of the cluster structure and includes the basic members, while at the same time, they highlight elements typical for this sector (tourism resources, tourism enterprises and tourists) (Figure 1).

The possible Lithuanian seaside wellness cluster may be based on the structure of prepared tourism cluster; this cluster has geo and horizontal cluster features. This cluster has to be oriented to increasing of wellness services competitiveness on the international scale. It is suggested to unify enterprises providing wellness and tourism services using this cluster because they are related by economic interests, i.e. attraction of bigger international tourists' flow providing wellness tourism services of very high quality. The basic cluster activities could be: research of natural (treatment) resources; research on resources impact on human's health; training of the wellness specialists and improving of their qualification; information gathering (data bases, websites); implementing of the services quality standards; marketing to attract new members (enterprises of accommodation, catering, transport, tourism information, trip organising, training, sports etc.); and organisation of conferences, seminars and exhibitions. Cluster should include enterprises that use and research natural (treatment) resources in their activity: at least five wellness enterprises; enterprises

that extract and research recreational resources; higher education institutions or professional training schools preparing medical and tourism specialists; wellness, SPA, hotel and restaurants associations; tour operators and agencies; sports and physical activities enterprises, and public sector (Municipalities of Palanga town, Klaipeda region, Kretinga region, Lithuania) (Figure 2).

Using that wellness services cluster, it is suggested to unify wellness and tourism enterprises in the seaside region of Lithuania because they are related by economic interests, i.e. more intensive attraction of the international tourists developing new and qualitative services of the wellness tourism. More real possibilities to initiate projects for dealing with the problems in wellness sector would occur (for efficient usage of mineral springs, establishing of new infrastructure objects of wellness tourism, dealing with shortage of the qualified specialists etc.) with the existence of this cluster.

Conclusions, proposals, recommendations

1. Universal and complete perception of the cluster concept is not provided by any author. The analysis of cluster concept shows that cluster always includes geographical unit, relationships among enterprises, institutions, and organisations, and reflects their interaction and highlights importance of competitiveness and cooperation; moreover, it indicates importance and benefit of specialisation, uniqueness and innovation.
   Elements, which form cluster, have been extracted like core with supporting activities and infrastructure important for its existence; utility activities; 'soft infrastructure', and 'hard infrastructure'.
   Clusters might be characterised by particular features: geographical concentration, unifying of different enterprises, each cluster is unique and it increases competitiveness and stimulates cooperation; clusters might be difficult to classify and they are considered as self-regulating business formations. Actually, the following cluster members are distinguished: enterprises that include suppliers, business services and final product; science and education, which are oriented to preparation of the specialists; financial institutions, and national and local government.
2. Tourism cluster is referred to as a group of enterprises and institutions that influence the development of a tourism product. Such enterprises and institutions are concentrated in the particular geographical territory and they are related by vertical (chain of tourism product production) and horizontal (involving factors, jurisdiction and information exchange) relationships. It is possible to distinguish presumptions for the tourism cluster development: competitiveness of tourism enterprises; convenient geographical location; natural and cultural resources; hospitality; concentration of the basic partners and their variety; existing of formal and non-formal relationships among cluster partners.
   The tourism cluster appears in the forms typical for a cluster: geo cluster, horizontal cluster, vertical cluster, side cluster, technological cluster, and concentrated cluster.
3. The tourism cluster structure comprises the following components: static elements (accommodation and catering); mobile elements (services of tour operators: carriage of passengers; car rent etc.); and dynamic elements (leisure organisation services, cultural and sport events). The structure of the tourism cluster models maintain the basic cluster margins and include the basic members but it highlights elements typical for that sector: tourism, recreational resources, tourism enterprises, and tourists.
4. Clustering processes ensure more harmonious development of the wellness tourism sector, matching quality of new activities with lower price and innovation. Successful example of wellness tourism cluster could help evaluate benefit of that cooperation and form guidelines of wellness market members' business models and create a chain of the Lithuanian seaside tourism product production and distribution attracting foreign tourists.

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CHARACTERISTICS OF MEASURES UNDERTAKEN WITHIN THE FRAMEWORK OF AXIS 2 "IMPROVING THE ENVIRONMENT AND THE COUNTRYSIDE" UNDER THE RDP 2007-2013

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Abstract. The paper presents different kinds of support instruments in frames of the Common Agricultural Policy, financial and material, which was undertaken by Poland in Rural Areas Development Programme in 2007-2013. The characteristic of actions undertaken in Axis 2 "Support of Farms in Mountains Areas and Other Less Favoured Areas (LFA)" agri-environmental programme include forestation of agricultural and non-agricultural land. The paper also pointed a problem related with renewing of forest production destroyed by various catastrophes and implementation of preventive instruments in the RDP 2007-2013.
Key words: area payments, additional payments, agri-environmental programme, natural environment protection.
JEL code: Q18

Introduction

Direct payments are one of the key instruments for implementing the Common Agricultural Policy, which is responsible for providing support and stability to agricultural income, reducing production costs, and maintaining farming activity in less favoured areas, which are difficult to farm.

The significance of countryside should be analysed with reference to its characteristics, which indicate that rural areas take up more than 93% of Poland's area and they are inhabited by approx. 38.8% of the total population. There are more than 1.7 million farms exceeding 1 ha of utilised agricultural area, which are involved in and benefit from subsidies under the programmes supporting their development.

Agri-environmental programmes are some of the major undertakings aiming to improve the standard of living in the countryside, by protecting the quality of the natural environment.

Aim and scope of the paper

The fundamental research purpose was to conduct a comparative analysis of the utilisation of the EU funds within the framework of the RDP "Improving the Environment and the Countryside" and measures related with supporting agri-environmental undertakings and agricultural land.

The research spanned a period between 2007 and 2013, focusing on the number of applications submitted and amounts of payments made in individual voivodeships. The chief source of data was the ARMA Management Information System.

Supporting land management in mountain areas and other less favoured areas (LFA) under the RDP 2007-2013

The measure related with supporting land management in mountain areas and other less favoured areas (LFA) was ranked first on Axis II "Improving the Environment and the Countryside", with the aid amounting to EUR 2.5 billion. The objective of Axis II is to maintain sustainable rural growth, which entails improving the environment, appropriate farming systems, and protecting unique natural resources in rural areas. The LFA scheme aims to ensure continued land management through financial support to farmers in areas where agricultural production or activity is more difficult. The aid is granted in the form of annual compensatory allowance. Pursuant to the RDP, to join the scheme, a beneficiary shall hold a farm of at least 1 ha, located in a LFA, and undertake to farm the LFA for five years.

The Minister for Agriculture and Rural Development (MA&RD) issued an ordinance of 11 April 2007 on detailed conditions and procedure for granting financial aid to support farming activity in less favoured areas. The payment is granted to support this activity up to the limit, which is the PLN equivalent of the euro amount specified in the Programme. The combined area of plots, where agricultural activity is conducted, shall be at least 1 ha (Journal of Laws No 68, Item 448). Financial support for operating in LFA was given to farmers whose farms lay fully or partly in LFA, and the area of utilised agricultural land was no less than 1 ha. Subsidies applied to arable land as well as orchards, permanent pastures and meadows amounting to EUR 38 (PLN 179) per 1 ha in lowlands (Zone I),

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EUR 56 (PLN 264) in Zone II and EUR 68 (PLN 320) per 1 ha in mountain areas. A degressive payment system was applied due to the nature of the RDP, whose fundamental goal was to maintain sustainable rural growth and due to the need to counteract the so-called overcompensation in individual farms. Support under the LFA schemes is closely linked with direct payments, seen as declarations made on a single,

Table 1

Number of applications for the LFA support submitted under the RDP 2007-2013

Voivodeship	Number of applications submitted			
	2007	2008	2009	2010
Dolnoslaskie (Lower Silesian)	21481	21321	21238	20867
Kujawsko-Pomorskie (Kuyavian-Pomeranian)	31549	31286	31068	30969
Lubelskie (Lublin)	68446	68531	67891	67080
Lubuskie (Lubusz)	16931	16858	16786	16691
Lodzkie (Lodz)	77805	77643	77351	76075
Malopolskie (Lesser Poland)	57110	56268	55130	51716
Mazowieckie (Masovian)	144079	144252	143459	141569
Opolskie (Opole)	7203	7160	7141	7055
Podkarpackie (Subcarpathian)	45916	46423	46527	43607
Podlaskie	70759	71163	71334	71116
Pomorskie (Pomeranian)	24128	24398	24322	24239
Slaskie (Silesian)	20083	20715	20422	19548
Swietokrzyskie	40851	40354	39522	37483
Warminsko-Mazurskie (Warmian-Masurian)	31875	31558	31572	31678
Wielkopolskie (Greater Poland)	78994	78801	78645	78337
Zachodniopomorskie (West Pomeranian)	19125	18853	18793	18707
Total	756335	755584	751201	736737

Source: ARMA Management Information System

Table 2

Amounts of the LFA payments made under RDP 2007-2013 (in thousand PLN)

Voivodeship	Amounts of payments made in 2007	Total amounts of payments in 2007-2009
Dolnoslaskie (Lower Silesian)	51254.6	149364.4
Kujawsko-Pomorskie (Kuyavian-Pomeranian)	102070.2	209388.5
Lubelskie (Lublin)	91517.3	272889.1
Lubuskie (Lubusz)	50093.3	126057.7
Lodzkie (Lodz)	106756.4	308734.9
Malopolskie (Lesser Poland)	63928.2	160027.7
Mazowieckie (Masovian)	260651.1	757185.5
Opolskie (Opole)	11911.3	36055.5
Podkarpackie (Subcarpathian)	45079.6	135798.4
Podlaskie	185686.9	542990.2
Pomorskie (Pomeranian)	72337.8	198668.2
Slaskie (Silesian)	22695.4	69141.2
Swietokrzyskie	40480.9	119253.6
Warminsko-Mazurskie (Warmian-Masurian)	100910.6	290078.4
Wielkopolskie (Greater Poland)	188514.7	504429.5
Zachodniopomorskie (West Pomeranian)	65311.5	182209.9
Total	1459199.8	4062272.7

Source: ARMA Management Information System

common application form. The receipt of applications started on 15 March 2007 in the first year of the current programming period, and on a similar date (15 March 2008) in the second year of implementing the Common Agricultural Policy. The number of submitted applications was related with the area classified as less favoured in a particular territorial unit. In absolute figures, the biggest number of applications was submitted every year in Mazowieckie (144.1 K), Wielkopolskie (78.9 K), Lodzkie (77.80 K), Podlaskie (70.7 K), and Lubelskie (68.4 K). In turn, if the issue is to be perceived relative to the overall number of farms in a certain voivodeship, then the most applications were submitted in Podlaskie (76.7%), Warminsko-Mazurskie (66.8%), Wielkopolskie (58.6%), and Lubuskie (52.5%) compared with 40.1% nationwide. According to the definition of Less Favoured Areas, support may be applied to the part of utilised agricultural area, which is located in such an area, and not always to the farm as a whole. Hence, the number of applications was not the same as the utilised agricultural area covered by the LFA schemes.

The percentage of approved applications in the overall number submitted was generally high and amounted to 97.5% in 2007, which went up to 98.7% in 2010.

In 2007, the amount of payments made under the LFA schemes amounted to PLN 1459.6 million. On average, the amount of aid per single application was PLN 1929, whereas the highest averages were found in Zachodniopomorskie (PLN 3414), Kujawsko-Pomorskie (PLN 3235), and Warminsko-Mazurskie (PLN 3165). In turn, the voivodeships with the lowest average aid per application included Podkarpackie (PLN 981) and Swietokrzyskie(PLN 990). In 2007-2009, the total amount of financial aid amounted to PLN 4062.2 million, and the voivodeship totals were the highest in Mazowieckie (PLN 757.1 million), Podlaskie (PLN 542.9 million), and Wielkopolskie (PLN 504.4 million).

The farmer receiving financial aid under the LFA scheme was obliged to comply with certain obligations resulting from the applicable regulations, which make this scheme clearly different from area payments. While direct payments are not subject to financial restrictions providing for the repayment of aid should certain conditions fail to be met, in the case of LFA, aid rigorous adherence to the principles of good agricultural practice is a basic criterion. In the ordinance of the MA&RD, it is stipulated that the first time the farmer is found not to comply with these rules, s/he is only cautioned and the non-compliance is noted in the inspection minutes. If, in the course of a subsequent inspection, s/he is found to continue to fail to comply with the principles, then the payments are reduced by 7% in the particular year and then withheld altogether (Journal of Laws No 68, Item 448). Financial aid is granted in the form of annual flat-rate payments, known as compensatory allowance granted per hectare of utilised agricultural area classified as LFA. Administrative decisions are issued within 6 months of submitting the application, and 30 days later the farmer receives its payment. Moreover, the farmer is obliged to keep records for 5 years back of documents such as proofs of purchase of fertilisers or crop protection products, tractor sprayer certificates, or completing environmental protection training.

Agri-environmental programme (agri-environmental payments) within the RDP 2007-2013

In the programming period 2007-2013, measures within the framework of the RDP are financed via the European Agricultural Fund for Rural Development. Agri-environmental payments were ranked second on Axis 2 "Improving the Environment and the Countryside". The objective of Axis II is to maintain sustainable rural growth, which entails first and foremost improving the environment, appropriate farming systems, and protecting the unique natural resources in rural areas. Some of the measures in Axis 2 are compensatory in nature due to the restrictions on agricultural production in protected areas (NATURA 2000 sites). The agri-environmental programme, in turn, aims to improve the natural environment in rural areas by preserving valuable habitats, promoting sustainable farming systems, developing landscape structures, and protection of local breeds of livestock. Initially, agri-environmental programmes included 9 packages. Each package contains variants, which contain obligations to implement certain detailed tasks specified in the ordinance of the Minister for Agriculture and Rural Development of 28 February 2008.

In 2009, several significant changes were introduced to the agri-environmental programme, which altered its functioning, including:

1) package No. 9 "buffer zones" was removed from the list;
2) an obligation was introduced to register the agri-environmental activity plan in the ICT system administrated by the Agricultural Advisory Centre in Brwinow;
3) the scope of records kept by farmers on their agri-environmental activities was expanded, by introducing the obligation to record activities for the entire holding with regard to all the used fertilisers.

Comparison of agri-environmental packages implemented in 2004-2006 and those implemented in 2007-2013, as listed in the RDP, can be found below:

2004-2006	**2007-2013**
1. Sustainable farming	1. Sustainable farming
2. Organic farming	2. Organic farming
3. Maintaining extensive meadows	3. Extensive permanent grasslands
4. Maintaining extensive pastures	4. Protection of birds and natural habitats outside Natura 2000
5. Protection of soil and water	5. Protection of birds and natural habitats within Natura 2000
6. Buffer zones	6. Preservation of plant genetic resources
7. Preservation of local animal breeds	7. Protection of soil and water
	8. Buffer zones

According to the comparison, the new packages introduced under the RDP 2007-2013 were the protection of endangered birds species and natural habitats outside Natura 2000 sites as well as in Natura 2000 sites. The packages come in 41 variants, with the biggest number (12) in the organic farming package.

Table 3

Number of applications submitted within the framework of agri-environmental programmes under the RDP 2007-2013

Voivodeship	Number of applications submitted		
	2007	2009	2010
Dolnoslaskie (Lower Silesian)	851	1422	2361
Kujawsko-Pomorskie (Kuyavian-Pomeranian)	2 056	3471	5880
Lubelskie (Lublin)	2 335	4206	7753
Lubuskie (Lubusz)	529	864	1741
Lodzkie (Lodz)	906	1422	2535
Malopolskie (Lesser Poland)	1 606	2912	3971
Mazowieckie (Masovian)	2 050	3912	6313
Opolskie (Opole)	227	433	1187
Podkarpackie (Subcarpathian)	1606	2855	4954
Podlaskie	1 686	3120	5242
Pomorskie (Pomeranian)	1 343	1998	3902
Slaskie (Silesian)	282	473	795
Swietokrzyskie	1 886	3097	4482
Warminsko-Mazurskie (Warmian-Masurian)	1 206	2412	4490
Wielkopolskie (Greater Poland)	2 097	3106	5557
Zachodniopomorskie (West Pomeranian)	1 045	1657	3775
TOTAL	21 711	37360	64938

Source: ARMA Management Information System

Table 4

Amounts of aid disbursed in agri-environmental programmes under the RDP 2007-2009 (in thousand PLN)

Voivodeship	Amounts of payments made in 2007-2009
Dolnoslaskie (Lower Silesian)	27489.6
Kujawsko-Pomorskie (Kuyavian-Pomeranian)	55049.8
Lubelskie (Lublin)	40651.1
Lubuskie (Lubusz)	21283.2
Lodzkie (Lodz)	9621.6
Malopolskie (Lesser Poland)	24398.6
Mazowieckie (Masovian)	43999.7
Opolskie (Opole)	6486.4
Podkarpackie (Subcarpathian)	27151.9
Podlaskie	40156.6
Pomorskie (Pomeranian)	39652.3
Slaskie (Silesian)	5408.6
Swietokrzyskie	19520.5
Warminsko-Mazurskie (Warmian-Masurian)	57919.9
Wielkopolskie (Greater Poland)	42865.7
Zachodniopomorskie (West Pomeranian)	53301.4
TOTAL	514956.9

Source: ARMA Management Information System

A farm may implement any number of packages, except that the organic farming and sustainable farming packages shall not be combined. According to the data of the RDP 2007-2013, the amount of EUR 2303.7 million was allocated for these measures. More than 124 thousand applications were submitted in 2007- 2010.

In 2007-2009, the payments within the framework of agri-environmental programmes amounted to PLN 514.9 million, and the highest amounts of aid were paid out in Warminsko-Mazurskie (PLN 57.9 million), Kujawsko-Pomorskie (PLN 55.0 million), Zachodniopomorskie (PLN 53.3 million), and Mazowieckie (PLN 43.9 million).

Agri-environmental payments are paid out according to flat rates and they are meant to constitute compensation for lost income and additional costs. They are granted to farmers who volunteer to undertake tasks stipulated in the agri-environmental packages. It is a form of long-term aid, disbursed annually, after a specific set of tasks listed in a certain variant is completed. Payments are calculated per hectare of area, head of livestock or running metre of linear element. Agri-environmental payments are granted to farmland utilised as arable land, meadows, pastures, and orchards.

Amounts in individual agri-environmental packages can be found below:

Type of package	**Payment rates**
- sustainable farming	360 PLN/ha
- organic farming	280-1800 PLN/ha
- extensive permanent grasslands	500 PLN/ha
- protection of endangered birds outside Natura 2000	550-1200 PLN/ha
- protection of endangered birds in Natura 2000	550-1390 PLN/ha
- preservation of genetically endangered plants	570-4700 PLN/ha
- preservation of genetically endangered animals	320-1500 PLN/head
- protection of soil and water	330-420 PLN/ha
- buffer zones	40-110 PLN/100rm.

Following the 2003 reform of the Common Agricultural Policy, the approach with regard to the EU support for the agricultural sector was modified, so that its principles were more closely linked with area payments. Direct payments became contingent upon farmers meeting a series of requirements, known as cross-compliance requirements.

Generally speaking, advisory support should be provided in 22 measures included in the RDP 2007-2013, especially in four measures in Axis 1, i.e. "Use of Advisory Services by Farmers and Forest Holders", Axis 2 "Agri-environmental Programmes", „Support for Farmers in LFA" and „Afforestation of Agricultural Land". In turn, "Cross-compliance", a very important programme applicable in Poland as of 1 January 2009 and in the EU from 2005, puts an obligation on the state to provide effective advisory support to all farmers receiving area payments. Assessments of whether farmers comply with the cross-compliance instruments will cover 1% of holdings every year. This means that 15 thousand farms will be subject to such an assessment. The RDP 2007-2013 provides for support under agri-environmental programmes to 200 thousand holdings, the LFA schemes to 750 thousand farmers and 52 thousand forest holders.

Agri-environmental measures were definitely some of the more difficult undertakings in both RDPs. Problems resulted from the large number of packages, numerous variants and tasks, significant territorial restrictions to priority zones (in the first RDP 2004-2006), and special focus on environmental protection. The degree of difficulty is illustrated by the fact that advisory support may be provided solely by a holder of an agri-environmental advisor certificate, issued by the Agricultural Advisory Centre in Brwinow. In the RDP 2004-2006, among the 7 packages included in the programme, three could be implemented only in priority zones, which significantly limited the number of eligible farmers. Moreover, while a farmer could implement 3 packages, they could not be any packages of choice but had to be closely linked with other packages or only in priority zones, which made it difficult to choose an appropriate variant for a certain site.

The new RDP 2007-2013 had to take into account the costs of financial aid under measures from the previous edition of RDP 2004-2006, as contracts were concluded for 5 years, and the rural development programme covered a period of 3 years. With regard to the agri-environmental packages, the Minister for Agriculture and Rural Development issued two ordinances and the Council of Ministers one, to correct the initial arrangements. Changes were aimed at limiting the number of packages (buffer zones), prolonging the deadline for the Agency to issue a decision on granting agri-environmental payments and introducing the ICT system.

Afforestation of agricultural land and non-agricultural land within the RDP 2007-2013

At present, the situation in agriculture is such that with the marked increase in productivity and intensification of land management, one could easily do without the several thousand hectares of marginal and degraded land that can be found in Poland. Moreover, in terms of food security, Poland is a part of a broad coalition of the Member States and socio-economic community.

The above-mentioned measure was ranked third in Axis 2 "Improving the Environment and the Countryside". In Poland, a significant percentage of soils, used as agricultural land, can be classified as low quality. Afforestation of such land would increase its value as well improve the statistical indicators related with the area of forests in the country. The proposed solutions with regard to the manner of cultivation, its composition,

Table 5

Number of applications submitted for the afforestation of agricultural land under the RDP 2007-2013, Scheme I

Voivodeship	Number of applications submitted			
	2007	2008	2009	2010
Dolnoslaskie (Lower Silesian)	141	71	69	85
Kujawsko-Pomorskie (Kuyavian-Pomeranian)	131	88	117	141
Lubelskie (Lublin)	226	159	225	252
Lubuskie (Lubusz)	63	32	34	57
Lodzkie (Lodz)	222	170	204	249
Malopolskie (Lesser Poland)	88	53	67	58
Mazowieckie (Masovian)	518	357	461	572
Opolskie (Opole)	36	31	28	26
Podkarpackie (Subcarpathian)	296	175	291	244
Podlaskie	117	109	171	165
Pomorskie (Pomeranian)	73	62	94	74
Slaskie (Silesian)	48	37	48	36
Swietokrzyskie	250	189	229	263
Warminsko-Mazurskie (Warmian-Masurian)	225	139	192	222
Wielkopolskie (Greater Poland)	177	136	139	123
Zachodniopomorskie (West Pomeranian)	66	36	55	36
Total	2677	1844	2424	2603

Source: ARMA Management Information System

and use of existing self-seedings will have a beneficial effect on maintaining biodiversity and the condition of forest plantations. The objective of the measure is to expand forest areas through afforestation, to maintain and to enhance the ecological stability of forest areas by reducing the fragmentation of forest complexes and establishing ecological corridors as well as to increase the role of forests in the global carbon balance and to reduce climate change (RDP, 2007).

The ordinance of the Minister for Agriculture and Rural Development of 18 June 2007 specifies in detail the conditions for applying for the financial aid. The aid is granted to farmers within the meaning of the Council (EC) regulations, establishing common principles for direct support schemes within the framework of the Common Agricultural Policy.

The aid is granted to the following individuals and business entities:

1) farmers;
2) groups of farmers (at least 3 individuals), with bordering holdings with a total area amounting to no less than 2 ha;
3) local government units or organisational units of gminas, poviats and voivodeships.

To receive support, a farmer shall hold land ranging from 0.5 ha to 20.0 ha and of adequate width (20 m). Afforestation aid is divided into:

1) afforestation grant;
2) maintenance premium;
3) forest premium.

Afforestation can proceed under one of the two schemes: Scheme I – afforestation of agricultural land and Scheme II – afforestation of non-agricultural land (Journal of Laws No. 114, Item 786).

In 2007, applications were collected for the afforestation of agricultural land. In turn, from 1 August to 30 September 2008, one could apply for aid under the afforestation on non-agricultural land scheme. The number of applications for the afforestation of agricultural land is presented in the table below.

The number of applications submitted annually remains high, ranging from 1844 to 2677. Overall, in 2007-2010, the highest number of applications were submitted in Mazowieckie (1908), Podkarpackie (1006), and Swietokrzyskie (931).

The number of applications submitted annually for the afforestation on non-agricultural land amounted to approximately 400 on average.

Afforestation of agricultural and non-agricultural land incurred spending of PLN 1467 million in the period under analysis. Relative to the number of applications submitted, the highest amounts of aid were granted to the beneficiaries from Mazowieckie (PLN 28 million), Warminsko-Mazurskie (PLN 22 million), and Podkarpackie (PLN 11 million).

Restoring forestry potential after natural disasters and introducing prevention schemes within the RDP 2007-2013

The fundamental objective of this measure is to restore and maintain tree stands destroyed by biotic and abiotic factors, and to introduce mechanisms preventing natural disasters, especially fire. The aid is provided based

Table 6

Number of applications submitted for the afforestation of non-agricultural land under the RDP 2007-2013, Scheme II

Voivodeship	Number of applications submitted		
	2008	2009	2010
Dolnoslaskie (Lower Silesian)	23	9	4
Kujawsko-Pomorskie (Kuyavian-Pomeranian)	16	12	13
Lubelskie (Lublin)	57	74	42
Lubuskie (Lubusz)	10	3	3
Lodzkie (Lodz)	12	16	8
Malopolskie (Lesser Poland)	14	14	13
Mazowieckie (Masovian)	62	67	54
Opolskie (Opole)	12	3	5
Podkarpackie (Subcarpathian)	89	77	98
Podlaskie	23	7	9
Pomorskie (Pomeranian)	11	8	6
Slaskie (Silesian)	6	7	5
Swietokrzyskie	16	30	20
Warminsko-Mazurskie (Warmian-Masurian)	31	35	24
Wielkopolskie (Greater Poland)	16	15	5
Zachodniopomorskie (West Pomeranian)	14	16	11
Total	412	393	320

Source: ARMA Management Information System

Table 7

Amounts of payments disbursed for afforestation of agricultural land and non-agricultural land under the RDP 2007-2013 (in thousand PLN)

Voivodeship	Amounts of payments made
Dolnoslaskie (Lower Silesian)	8436
Kujawsko-Pomorskie (Kuyavian-Pomeranian)	6443
Lubelskie (Lublin)	10694
Lubuskie (Lubusz)	3787
Lodzkie (Lodz)	7437
Malopolskie (Lesser Poland)	2421
Mazowieckie (Masovian)	28425
Opolskie (Opole)	2134
Podkarpackie (Subcarpathian)	10810
Podlaskie	6727
Pomorskie (Pomeranian)	10401
Slaskie (Silesian)	2379
Swietokrzyskie	7567
Warminsko-Mazurskie (Warmian-Masurian)	22549
Wielkopolskie (Greater Poland)	8953
Zachodniopomorskie (West Pomeranian).	7574
Total	146737

Source: ARMA Management Information System

Table 8

Number of applications submitted and amounts of aid for restoring forestry potential under the RDP 2007-2013 (in thousand PLN)

Voivodeship	Number of applications submitted	Applications following economic and technical assessment	Number of contracts concluded	Requested amount of aid
Dolnoslaskie (Lower Silesian)	27	3	2	70735
Kujawsko-Pomorskie (Kuyavian-Pomeranian)	10	5	5	10327
Lubelskie (Lublin)	3	1	0	6498
Lubuskie (Lubusz)	9	2	2	17078
Lodzkie (Lodz)	14	8	7	27356
Malopolskie (Lesser Poland)	8	4	4	6403
Mazowieckie (Masovian)	12	9	8	25241
Opolskie (Opole)	6	2	2	19788
Podkarpackie (Subcarpathian)	9	7	7	28581
Podlaskie	12	3	3	17222
Pomorskie (Pomeranian)	5	3	3	13405
Slaskie (Silesian)	3	3	3	8855
Swietokrzyskie	10	7	7	10169
Warminsko-Mazurskie (Warmian-Masurian)	22	18	16	61076
Wielkopolskie (Greater Poland)	13	5	5	34643
Zachodniopomorskie (West Pomeranian)	6	3	3	12621
Total	169	83	77	369998

Source: ARMA Management Information System

on comprehensive forest projects. It is assumed that the objectives are met by clearing damaged forest areas, preparing forest planting material, gradual restoration of destroyed tree stands including maintenance and protection of established cultivations, maintenance and protection of damaged tree stands in all age classes and valuable forest landmarks, opening forests to the public by building and upgrading forest tourist and educational infrastructure, and reinforcing forest fire protection systems.

Aid granted under the above measure will be available in the event of natural disaster (wind, snow, flood, avalanche, landslide, harmful biotic factors) or fire, in forest areas anywhere in the territory of the Republic of Poland, irrespective of the form of ownership. Support within the framework of the measure may be given to projects related with preparing forest reproductive material for the purposes of restoring destroyed forests, clearing damaged forest area or forest restoration including maintenance and protection of established nurseries. Moreover, the aid can be granted for the maintenance and protection of damaged tree stands and valuable natural monuments, and making forest areas accessible for their social functions. The measure is implemented under two schemes, including:

— Scheme I – support for areas affected by a natural disaster or cataclysm;
— Scheme II – introduction of preventive measures in areas ranked in the top two categories of fire hazard. Beneficiaries shall include unincorporated organisational units of the State Forests National Forest Holding. Aid shall be granted under a contract and shall involve reimbursement of incurred costs.

Out of 169 submitted applications, 83 applications (49.1%) were approved in the course of economic and technical assessment. The total requested amount of aid reached PLN 370 million. Following the amendment to the MA&RD ordinance, changes were introduced to update the list of forest divisions eligible for aid under Scheme I. The scheme applies to areas affected by natural disasters or cataclysms. These areas were chosen based on reports to the minister responsible for environmental matters. Moreover, the MA&RD ordinance aimed to introduce changes simplifying the implementation process, including:

— waiver of obligatory compliance of the operation with the forest management plan, if the forest division has a plan drawn up pursuant to the Fire Protection Act;
— making the terms of support independent of commencing public tendering proceedings within a specific deadline;
— ensuring beneficiaries' compliance with the EU requirements regarding separate accounting systems;

— providing an option for the applicants to make a one-off modification in their application with regard to the financial plan of the operation (MA&RD ordinance, 2010).

Conclusions

The research shows that the Common Agricultural Policy during the integration went through significant and systematic evolution and change directions in support of agriculture. First of all, in consideration of the policy and due to transparency and public opinion, it was found that public spending on agriculture shall be more justified, beyond the purpose of which it was to raise farmers' income. Farmers should to a greater extent provide high quality food, fair treatment of animals, the protection of the environment and the landscape. The Council regulations (EC) introduce gradual changes that:

1) remove the link between production and direct payments;
2) state the dependence of payments to meet the standards for the protection of the environment;
3) significantly increase support for the development of rural areas, by modifying the aid with the exception of those for the small farmers;
4) introduce new rural development measures, in order to improve the quality of production and food safety.

These changes are specific legal standard, which governs the behaviour of farmers in agricultural production and the environment. This action is closely associated with the existing instruments of the Common Agricultural Policy. Initially, the cross-compliance rules related with direct payments, after the amendment of 2008, they extended the mechanism of action specified in Axis 2 of the Rural Development Programme 2007-2013. There is a lack of compliance with the rules-compliance risk reduction in direct aid payments, and ultimately the world.

The second area analysis the study concerned was the evolution of Pillar II in rural areas. Actions implemented in the framework of Pillar II of the CAP were addressed to 91% of the areas referred to as rural areas, which encompass more than 56% of the EU population. Rural development policy is essential in terms of land use and management of natural resources. It is the diversification of rural economic-agricultural economic departments allowing to establish non-agricultural economy departments.

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BUSINESS ACTIVITY OF SMALL AND MEDIUM ENTERPRISES IN POLAND IN LIGHT OF THE CONCEPT OF SUSTAINABLE DEVELOPMENT

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Abstract. The idea of sustainable development arouse from the need to alleviate and prevent unfavourable external results of dynamic development of capitalist economy during the previous century. Developing of the theory and implementation of the concept in practice is an ongoing process. This continuous process requires constant balancing of its three dimensions, i.e. economic, ecological and social dimension. Weakening or strengthening any of these elements at the cost of the others may lead to crisis in all the three dimensions. Therefore, this kind of development will undergo the influence of unknown and impossible to predict changes of external and internal conditions.
Key words: sustainable development, small and medium-sized enterprises, barriers
JEL code: Q18

Introduction

The idea of sustainable development emerged from the need to attenuate and prevent unfavourable external effects of dynamic growth of capitalist economy in the course of last century. The theory is still being built and implemented. It is a continuous process, whose fundamental condition is constant compensation of its three dimensions, i.e. economic, ecologic and social. Weakening or strengthening of any of these elements at the expense of others may eventually lead to crises in all three dimensions. Hence, it appears that this type of development will be subject to unknown and presently unforeseeable changes of external and internal conditions (Zuzek D., 2010).

The realization of the sustainable development concept depends on specific development conditions and factors, the degree of achieved development and the development objectives set. Because the principle is of multi-disciplinary character, its interpretation depends to a certain degree on whether it is ecologists, economists or representatives of natural sciences who make it.

All the actions minimizing adverse impact on the natural environment undertaken by an enterprise can be deemed as a demonstration of the fulfilment of the sustainable development concept. In this way, companies contribute to preserving adequate quantity and quality of natural capital, which serves as the basis for the fulfilment of current and future generations' needs as well as adapting the scale of the economy to ecosystems based on which it operates.

The objective of the article is to present the main principles of sustainable development considering the enterprises operating according to those principles. Internal and external benefits resulting from pro-ecological operation of small and medium enterprises were indicated along with major barriers enabling their operation.

Results and discussion

1. Concepts and principles of sustainable development

The concept of sustainable development was defined in the Environment Protection and Management Act of 31 January 1980 (Journal of Laws 94.49.196), which states that "sustainable development is such a type of social and economic development in which the process of integrating political, economic and social activities occurs with the aim of balancing opportunities of access to the environment to individual societies or their citizens – both contemporary and future generations – while maintaining natural balance and stability of fundamental natural processes."

Wide-ranging understanding of stable and sustainable development enables to define it as a set of determinants (spheres or planes), a set of characteristics, and a set of principles or as a more or less integrated order (Borys T., 1999).

Initially, the focus was only on two aspects – economic and ecological, between which specific relationships occur. In the ecological dimension, the focus was on maintaining adequate quality of natural environment and rational use of resources. Whereas the social dimension was not considered too important, yet it has appeared that it is connected with the improvement of people's living conditions, access to infrastructure and smooth operation of economic systems.

There are many references to a three-dimensional model of sustainable development in literature. More and more frequently, an institutional aspect is also added, and at times spatial, moral and awareness aspects as well (Dresler E., 2006). The concept of sustainable development as a set of objectives may be linked with the three-dimensional model. The dimensions specified above can be treated as planes for detailing particular ecological, economic and social objectives.

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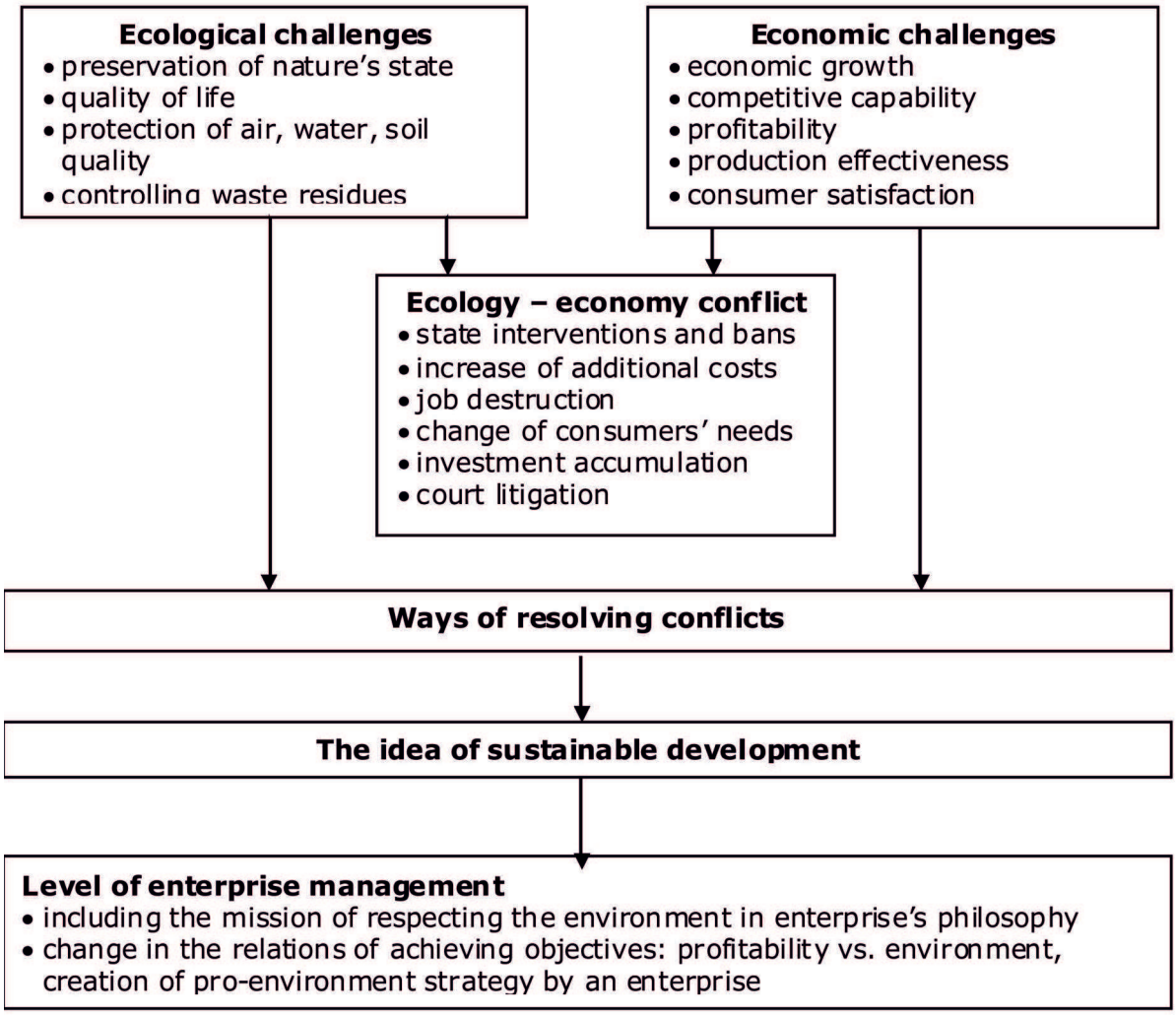


Source: Author's compilation based on J. Adamczyk, 2001

Fig.1 **Transformation of the concept of sustainable development to enterprise level**

2. An enterprise in the concept of sustainable development

Understanding of the principles of sustainable development ought to be obligatory, especially for enterprises, since enterprises have a significant impact on the environment.

The realization of sustainable development idea on a global scale will not be possible if is not implemented at a microeconomic level (Figure 1). In the practice of enterprise operation, limiting and preventing pollutant emissions created during production processes is of greatest significance from the point of view of environment conservation.

In practice, the implementation of sustainable development concept requires that enterprises take the following actions (Kozlowski S., 1992):

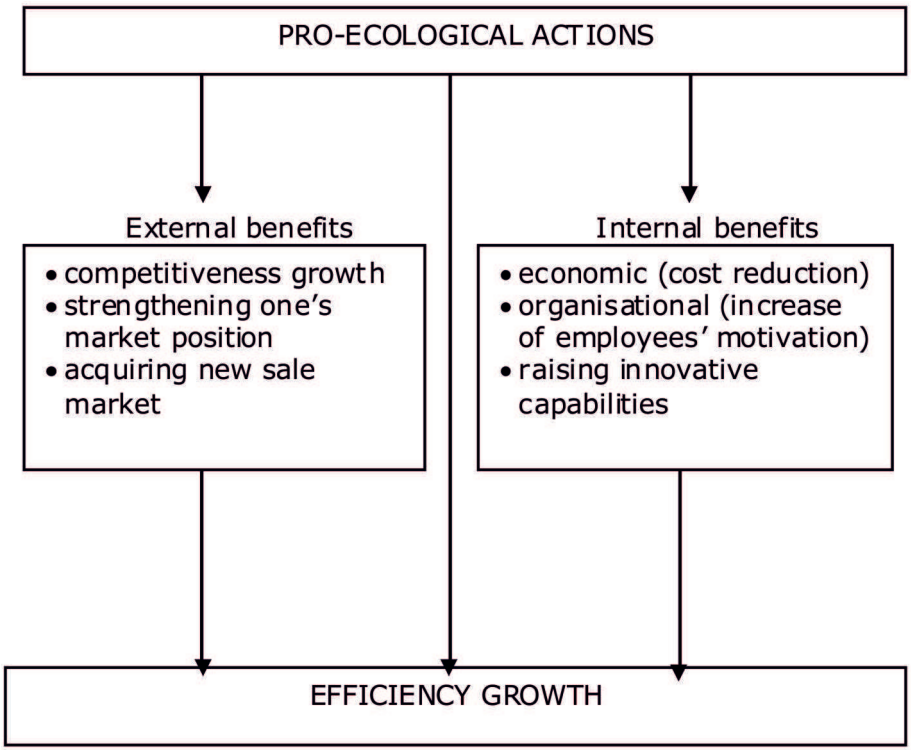
— limiting dependency on non-renewable energy raw materials;
— limiting emissions of coal, sulphur, and nitrogen into the atmosphere;
— reducing existing and counteracting new emission of toxic pollutants into soil and water.

Environmental Management System – EMS, which is a part of a general management system in an enterprise and concerns fitting of environmental aspects into economic processes, may play a special role in the implementation of sustainable development concept by an enterprise.

"I Ecological Policy of the State" delineates actions to be taken in respect of industrial policy for the implementation of the sustainable development model (Act of the Seym, 1991):

1) more extensive introduction of a technology that generates little or no waste, closed water cycles, production hermetisation, resulting in decreasing the amount of pollution generated and discharged;
2) reducing the production that is high on energy, material and water consumption;
3) adequate operation of pollution reduction equipment by properly trained services of environment protection in an enterprise.

It seems legitimate that implementation of an environment management systems requires raising ecological awareness of managers and employees so that



Source: Author's compilation

Fig. 2. **External and internal benefits from conducting pro-ecological activitie**s

environment protection becomes a part of the company's organizational culture. It is extremely important, as not all aspects of enterprise operation and its links to the natural environment can be regulated with economic or legal instruments. Therefore, if business entities implement an environment management system, they analyse all aspects of their activities and undertake such actions, which have a significant impact on sustainable production.

The benefits resulting from the environment management system include a decrease of enterprise operation costs (Figure 2). Their reduction oftentimes arises from rationalization of energy, water, and raw materials consumption. Pro-ecological actions also concern reducing harmful amounts of waste and sewage generated in production processes. Participation of a company in pro-ecological activities also contributes to its positive image in the external environment, which may translate into competitiveness growth or strengthening such a company's position on the market.

3. Identification of barriers to sustainable development of small and medium enterprises

In order to analyse barriers to the growth of small and medium enterprises, their classification is required in respect of the time of their occurrence in the course of company's operations. Literature on the subjects divides the barriers into (Daszkiewicz N. 2004):

— entry barriers;
— development barriers.

There are two types of factors that influence company dynamics at different time and in different manner: a moment of entry, when an idea undergoes a phase of realization, and a moment in which a company undergoes a phase of growth, or it starts to decline. Both at the moment of entry and at later stages, companies encounter entry and development barriers. Entry barriers occur at a moment of starting up a business activity, and they concern problems related to a company's finding its place on the market. Typically, there are difficulties linked with vagueness of legal regulations, unfavourable business climate, and high costs of investments, patents, corruption and incompetence of state officials. Development barriers concern companies already operating on the market, and they occur at a critical point of survival, when a company moves to a stage of growth or decline. Their influence on a company's development varies.

Apart from various barriers hindering enterprise growth at every phase of their life cycle, there are also universal barriers limiting growth, independent from the stage of enterprise life. They occur all over the world, irrespectively from the specificity of the SME sector in a given country and typically, they are considered in three areas (Storey D. J., 1995):

— management barriers – resulting from insufficient managerial skills of entrepreneurs who rarely have preparation in the field of management;
— financial barriers - related to financing of business activity. In the start-up phase, small and medium enterprises finance their operations from own resources, family and friends' resources, but as a

Table 1

Selected barriers limiting the operation of small and medium enterprises in Poland

TYPE OF BARRIER	CHARACTERISTICS
Legal	1. Instability and vagueness of legal regulations 2. Lack of harmonization of the law with the EU legal order 3. Prolonged nature of court litigations 4. Complicated procedures of starting up and conducting business activity
Capital	1. Difficult access to external sources of financing 2. Difficulties that SMEs encounter in obtaining guarantees for bank loans 3. Limited access to public tenders 4. Foreign currency exchange rate fluctuations
Market	1. Growing competitiveness 2. Limited demand
Resulting from the policy regarding SMEs	1. Unfavourable government policy 2. Excessive fiscalism 3. Complicated tax system 4. Vagueness of tax regulations 5. Limited public aid
Informational	1. Limited access to information 2. Lack of economic information 3. Lack of information on the activities of public authorities
Infrastructural	1. Difficulties and high costs of access to infrastructure
Social	1. Low mobility of the labour market 2. Lack of acceptance for self-employment

Source: author's compilation on the grounds of G. Michalczuk (ed.), Factors and tools of SME development, 2009

company develops, its financial structure changes, and the need for loan capital rises.

— barriers to demand – which are a natural limitations resulting from the nature of market economy. During an economic upturn such barriers area weakened, whereas at times when economy is at a recession stage, barriers of demand hinder SME's growth more strongly.

From the point of financial conditions of the SME sector, the division into operation barriers and development barriers in short- and long-term perspective is significant. Such barriers include:

— in the short-term: lack of production capacity, managerial personnel, orders, qualified employees, operating capital, costs of operation financing, the EU legal regulations as well as the costs of research and development;

— in the long-term: management continuity, export limitations, costs of financing development, limited demand on the market, lack of long-term sources of financing. National regulation of the law (including the ones regarding taxes), the EU legal regulations as well as difficulties in gaining access to new markets.

Economic practice and the literature on the subject of the operation of small and medium enterprises in Poland enable one to differentiate a variety of barriers and difficulties that the SME sector encounters (Table 1).

The barrier that entrepreneurs indicated most frequently is a legal barrier, linked with complicated and constantly changing regulations of the law, lack of effective trademark protection and difficulties in enforcing the law.

Other legal and organizational limitations include:

— ineffectiveness of entrepreneurs' registration procedure and lack of instructions for officials regarding inter-institutional co-operation;

— location procedure, featuring a high degree of bureaucracy and long delays at every important stage.

Economic barriers to the operation of Polish enterprises chiefly regard lack of a cohesive and effective policy of the state towards the SME sector. In Poland, it is above all a problem of a complex basis, as the state and local government authorities have been creating grounds of infrastructure in this respect for several years. The scope and effectiveness of actions undertaken for the benefit of the SME sector remain an open issue, whereas entrepreneurs take advantage of them in a rather limited degree (Jerschina J., 1995). The main reason for not applying for public help is lack of basic information on where and what type of aid is available. In SMEs, formal requirements constitute the most discouraging factor to obtaining funds along with rejections of applications of entities applying for public aid. The second biggest deterrent concerns substantive matters, chief among them being the lack of own resources required to apply for aid and too short deadlines for application submission.

Small and medium enterprises find the crediting conditions offered to business entities by banks to be a significant development barrier, since their access to financing their operations through crediting is more difficult due to high requirements banks pose in the process of granting a credit. Basic barriers occurring in the process of small and medium enterprises applying

for a bank credit involve lack of credit history, which facilitates an evaluation of enterprise credit worthiness, relatively high costs of drawing up a credit application, and lack of securities a bank requires to grant a credit (Przedsieborcy, 2006).

Another element of the economic barrier is the state's fiscal policy, featuring high restrictiveness and high degree of complication and difficulty. According to the data of the Ministry of Finance, VAT (53% petitions for interpretation) generates the biggest number of problems, followed by personal income tax (35% petitions for interpretation) and corporate income tax (8% of petitions) (Luczka T., 2005).

A demonstration of a management barrier in an SME's operation is having limited knowledge in the area of marketing and management, necessary to find a market for goods and services. Such an attitude can arise from two reasons. Firstly, entrepreneurs still have limited knowledge of marketing and management and they expect assistance from the state in solving problems related to functioning of an enterprise in the market economy. Secondly, a vision of the state's deep intervention in the functioning of the market was transplanted from the centrally planned economy, and that is why some company owners are still unable to adapt to the changes that have been taking place in the Polish economy for fifteen years. Educational barrier is closely linked with the management barrier: lack of knowledge, skills and competences in shaping the competitiveness of national production factors and the competitiveness of conducting a business activity (Mickiewicz A., Mickiewicz B., 2010).

Rapidly growing labour costs can be added to the barriers described above, which limit the development of small and medium enterprises in Poland. Although Poland still features relatively low labour costs in comparison with the EU, yet the cost structure is highly unfavourable. Wage costs (net remuneration, income tax, social security) constitute approximately 70 per cent of employment related costs, while costs unrelated to employment constitute over 30 per cent.

Another barrier to SME's development is an innovation-technology barrier and the difficulties in gaining access to new technologies, management – related mostly to a wide scope of duties and low degree of specialization of managerial personnel. A special role is reserved to an entrepreneur in the development of small and medium enterprises, being the person who organizes market undertakings and manages their accomplishment, taking a risk in hope of achieving success.

Conclusions

It is presently believed that an enterprise, apart from its production functions and its activity aimed at generating profit or raising competitiveness, also ought to strive to maintain adequate state of the natural environment. An enterprise respecting the principles of sustainable development is a socially responsible entity, acting towards the fulfilment of society's needs – economic and environmental ones. Responsibility of an enterprise goes beyond the framework designated by a legal system in which it operates, and it is evaluated through economic, environmental and social factors.

Yet, despite that, enterprises encounter a number of barriers resulting from the implementation of sustainable development patterns. The biggest of them include insufficient ecological awareness of entrepreneurs, which is linked with insufficient knowledge in the field of environment protection and the resultant obligations of an entrepreneur as well as the knowledge about the dangers to the environment caused by a conducted business activity.

Difficult access to the EU funds constitutes another problem to entrepreneur. As many as 39.1% of SMEs consider it to be a difficulty in conducting and developing their business activity. For instance, they find it onerous that they are required to submit and archive paper documentation related to project implementation and subsidy application. The requirement means that the part of the handling costs is transferred to the applicant. Yet, rigorous and formalized controls, putting emphasis on the fulfilment of procedural requirements, and not contributing to undertaken actions or achieved results constitute another problem. The situation is caused by the controllers' lack of experience in the realization and the specificity of projects co-financed by the European Union as well as lack of uniform standards regarding financial documentation.

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PROFITABILITY OF LAND FACTOR ON THE CONDITIONS OF SUSTAINABLE DEVELOPMENT – FRAMES OF NEW LAND RENT THEORY

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Abstract. Other papers concerning agricultural economics frequently emphasise a problem of low resource productivity. However, the measuring methods are controversial, because they do not consider a progressive depreciation of fixed assets in agriculture and the new utilities of land on the conditions of sustainable development. These preconditions entitle to formulate a hypothesis that a productivity of capital in agriculture in Poland is increasing because of intrinsic values of agricultural areas. This implies a need of rethinking the neoclassical land rent theories. The empirical objective of the article is an evaluation of capital productivity in agriculture in Poland in a long period to test a new land rent theory. The basis for the empirical verification of the hypothesis formulated by the author is a sectoral input-output analysis. Data from the input-output tables were used to evaluate capital productivity coefficients in agri-food sector.
Key words: land rent, capital productivity, agriculture, sustainable development.
JEL code: Q10, Q15, B52

1. Introduction

The analysis of the development of land rent concepts that occurred in the history of economic thought showed the lack of adaptation of their assumptions to the present realities of the agricultural sector. Generally speaking, the Ricardian economics too strongly believes in the price mechanism, the absolute rent theory assumes that all the values originate from labour; according to the residual rent theory, land functions come down to the location factor and the neoclassical theory proves that a rent is a result of a market failure.

The aim of the paper is to deduce and to test empirically a new land rent concept harmonising with the sustainable development paradigm. It means verifying the hypothesis that a value of land rent is determined by a positive difference between the expected productivity of capital in agriculture and in its market environment. Therefore, a crucial research task is the analysis of the inputs and capital resource productivity coefficients in agri-food sector. Those coefficients are important for the formulation of recommendations for the EU agricultural policy, which is currently in the transition period.

The modern land rent concept should be addressed, in particular, to the highly developed market economies since it is obvious where the processes not included in the existing rent theories are cumulated. Summing up, the three following phenomena are at issue:

— consumption models shift to more pro-ecological ones, which enable **the land factor to create new utilities such as** the environmental values - landscape, biodiversity, leisure, cultural inheritance, a guarantee of food supply, food safety (Sapa, 2009), a rural life specificity, i.e. settlement models, culture and tradition, local activities (Vatn, 2010; Fałkowski, 2010);
— increasing market efficiency as a result of economic globalisation (“**flows without borders”**);
— diminishment of the regulative role of nation states, and as a result, a change in coordination mechanism from dichotomous state-market system to market-state-economic institutions system[1] in which the latter successively takes over the role of the state.

The market economy development can be connected with different stages of the land rent valorisation. At a certain stage of economic development, which is associated with the evolution of social consciousness, the market and/or appropriate institutions valorise **intrinsic land utilities** serving as public goods and give them financial character. Therefore, two important preconditions for the modern concept of land rent were derived: occurrence of intrinsic agricultural land utilities on the conditions of sustainable development (which in the market economy are transformed into a financial product) and the assumption about the informative efficiency of the agricultural land market (which allows for correct valorisation of the utilities in the market land prices).

2. A new land rent concept

The above assumptions entitle to adopt the following hypothesis: **the reason for the land rent to occur is intrinsic land utilities, which in the commodity money economy cause the expected productivity of capital factor in agriculture to be higher than in its market environment. Therefore, the value of land rent is determined by a positive difference between the expected productivity of capital in agriculture and in its market environment.**

The agricultural land market realises in prices the expectations concerning the surplus productivity of

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[1] *Economic institutions are defined according to the New Institutional Economics approach as systems of contractual relations between economic entities, coordinating the process of concluding transactions*

capital in agriculture. During the valuation process, however, the farmer's own labour factor is disregarded since it has no market value. For that reason, the rents obtained in incomes by individual farms do not coincide with the values resulting from the land price. It should be stressed that higher capital productivity is proven not by unpaid part of the worker's labour but by the occurrence of intrinsic land utilities on the conditions of sustainable development, which are valorised and create an additional financial product. Moreover, by applying the category of "the expected productivity", the new land rent concept translates to the modern mechanisms of price development based on the expected rate of return. Therefore, the mechanism for creating land rents becomes a part of the main economic trend and assimilates with the theory of rational expectations. It facilitates its empirical verification and operationalisation in the economic research. Thereby, it does not concern negating the assumptions of the mainstream economy paradigm in the meaning of "scientific revolution" of T. Kuhn. The author of the paper is not denying the hypotheses of the "hard core" of the new classical economics, especially the hypothesis of rational expectations, as it is done by e.g. the Imperfect Knowledge Economics. The attempt at deducing the land rent theory refers rather to the methodological concepts of I. Lakatos (Wojtyna, 2000). The introduced modifications concern the "protection belt" of the neoclassical paradigm, including, above all, isolating the land factor from the diminishing marginal utility theory and introducing institutional limitations of rationality.

In the author's opinion, there exist agricultural land services valued neither by the market of agricultural products nor by the prices of production factors. These are public utilities mentioned before. In the process of agricultural production, they are complementary to the capital. Therefore, theoretically, they allow for obtaining a better ratio of incomes to outlays as well as lower the ratio of an alternative capital cost to the surplus rate obtained in agriculture. Therefore, the productivity of capital (measured in monetary units) grows. Hence, the rents connected with this process can be called "land rents". The process of the rent creation is composed of two stages: in the first stage, it is possible to retain income in agriculture above average after incurring all the intermediate inputs, and in the second stage, the retained income compensates for the owned capital, and determines its profitability against the alternative cost[2]. The landowner does not incur any outlays to generate intrinsic utilities of land, which, on the contrary, increase the value of agricultural products (although the market does not valorise the scale of the increase). In general, these services are related with the natural cycle of vegetation of plants, renewability of land resource (not subject to depreciation), and at present, with more and more valued well-being of the natural environment offering, inter alia, public goods. Hence, a part of the agricultural production surplus results from above average financial productivity and creates the rent substance, i.e. the residual income from the capital employed in agriculture. It should be capitalised as perpetual rent in the market prices of agricultural land (provided that the land factor intrinsic utilities are its source). Therefore, the land prices are determined by the surplus productivity of capital in agriculture.

The proposed heuristic model of creating the land rent is positive in nature. It should be proven by empirical verification in the next part of the hereby paper. Moreover, also normative preconditions advocate for it from the point of view of the sustainable development. If a part of the agricultural surplus is a land rent connected with higher productivity of capital, and the remaining part remunerates the own labour of a farmer, a "fund" for the development of agrarian structures is generated. That development means land concentration and rehabilitation of the well-being of natural environment and rural areas. In other words, financial resources for "disinterested concern for land" are accumulated in agriculture. Of course, provided that a part of the surplus constituting the remuneration for own labour is fair. Does "fair" mean guaranteeing parity labour cost regarding average remunerations in a country? It is hard to say. Certainly, it is a remuneration allowing farmers to take part in the essential processes of the society development. If the farmer's labour remuneration is too low, the farmer also consumes the land rent, thus, limiting the possibilities of the sustainable development of the farm.

This is how, in the author's opinion, the mechanism of creating the land rent substance on the macroeconomic level is currently functioning. In the sustainable development paradigm, land replaces capital to a certain extent, and some utilities provided for the consumer have a zero cost. It should be stressed that on the microeconomic level, the process of accumulating land rent is more complex. Creating rent does not always coincides with its realisation, and the "negative residual income" from scarce resources does not mean the lack of rent. It means, however, that the rent has been intercepted by other entities. Nevertheless, it is possible to organise the process of agricultural production so that the rents valued by the market were fully implemented. This is where the role of institutions begins.

3. Research results and discussion

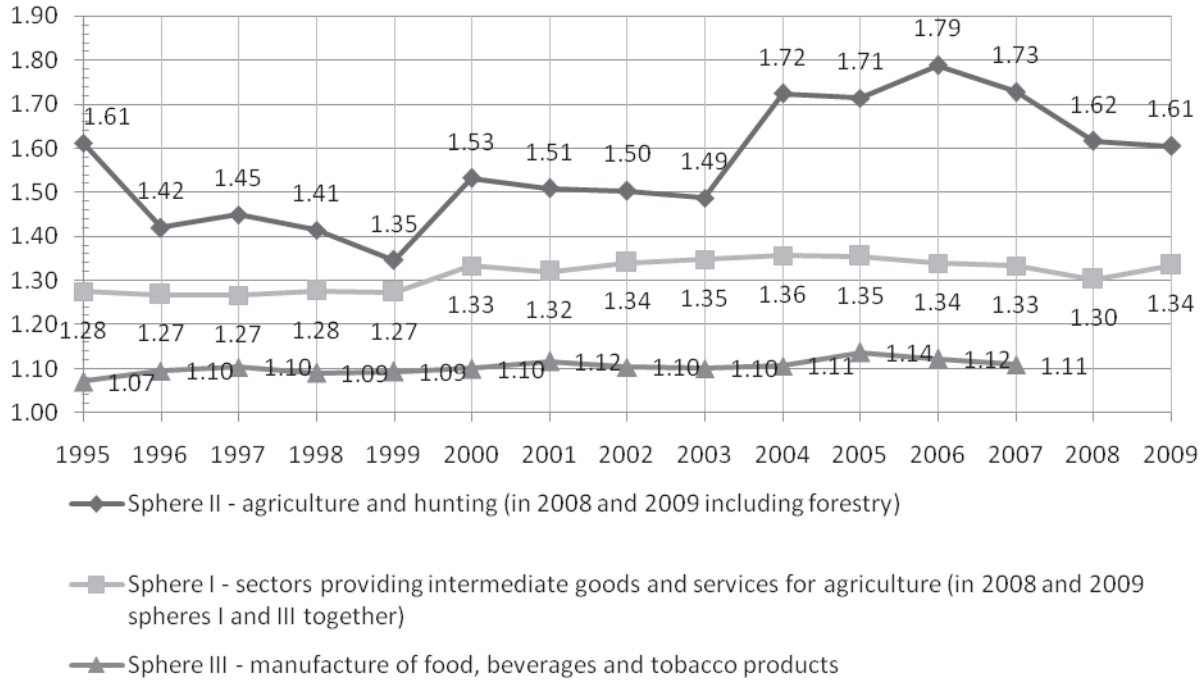
3.1. Methods

To sum up, the new land rent concept underlines the existence of three different production factors – labour, land, and capital (and not only capital and labour as in the neoclassical approach). The basis for the empirical verification of the above-formulated hypothesis will be a sectoral input-output analysis applied in the input-output tables. In the analysis, surplus is built by cutting off intermediate consumption, employment costs, and net taxes from the global production. The point is to confirm[3] that both the expected productivity of inputs and capital resource productivity are higher in agriculture in relation with other spheres of food economy. Theoretically, it results from the fact that the market mechanism fails to valuate some services of land and a farmer's family labour.

In the analysis of the inputs and capital resource productivity coefficients, the author used the same

[2] Within this meaning, the alternative cost is the average profitability of capital in the agricultural environment

[3] Assuming optimal production scale and structure, and their relation with assets. Hence, the thesis can only be proven on the sectoral level, assuming that the average coefficients equal potential coefficients



Source: author's estimations based on the Central Statistical Office (GUS), Eurostat, OECD (GUS 1995-2007, 2009; GUS 1996-2010a; GUS 1996-2010b; GUS 1996-2010c; GUS 1996-2010d; GUS 2000-2009; GUS 2012; Eurostat 2000-2007; OECD 1996-2010)

Fig. 1. **Dynamics of the capital input productivity in agriculture and its environment in 1995-2009 including subsidies from the CAP (in PLN/1 PLN of input)**

surplus calculation equation as in the input-output sectoral table[4]. The analysis was conducted on the sectoral level (according to the sections and divisions of the Polish Classification of Activity) with the use of the data from the Central Statistical Office (GUS), the EU Statistical Office (Eurostat), and statistics from the Organisation for Economic Co-operation and Development (OECD). Subsequently, two stages of the rent creation were distinguished: transformation of capital inputs into effects and remunerating the capital by the surplus. It results in a methodological distinction between outlays of production factors and resources. The capital inputs were defined as truly incurred costs of a global production in a particular year (without depreciation). Whereas, the resources determine the size of production factors available to the production structures in a particular sector. Therefore, the outlays include intermediate consumption, employment costs (except own labour), and net taxes. The capital resource is the value of net fixed assets plus the value of current assets (cash).

At the first stage of creating the rent substance, the amount of incurred capital inputs is subject to transformation into an effect of the global production. At the second stage, the global production surplus over the incurred inputs pays for the capital and own labour of the entrepreneur, and determines the surplus rate.

To prove the formulated hypothesis, the author compared the productivity of capital inputs and capital resource in all the spheres of food economy. Thereafter, the author estimated a potential value of the land rent substance according to the adopted assumptions. An additional test, though decisive for the truth of the presented concept, is verification whether the estimated rent substance is close to the value of the rents capitalised in the market prices of land. Fulfilling this condition would not only confirm the validity of the assumptions but it would also prove the informative efficiency of the agricultural land market (Czyzewski, 2013).

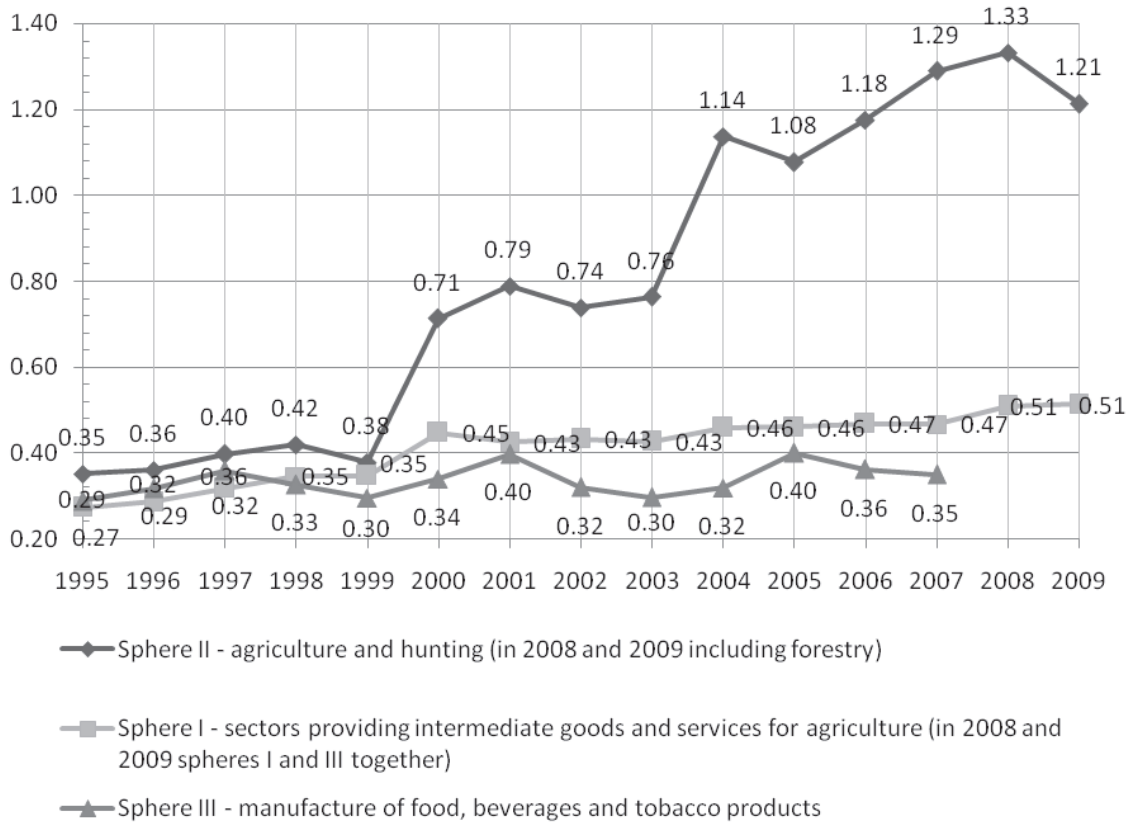
In light of above, two coefficients were developed (Czyzewski, 2012):

$$\text{CRP in PLN/1 PLN of resource} = \frac{\text{gross operational surplus}}{\text{net fixed assets + cash}} \quad (1)$$

As indicated earlier, the CRP (Capital Resource Productivity) develops on the basis of the relation between the global production and inputs, which determines the level of the operating surplus. Therefore, the primary source of land rent is a relation between the global production and the intermediate consumption. It is expressed by the second coefficient – the Capital Inputs Productivity coefficient (CIP):

$$\text{CIP in PLN/1 PLN of input} = \frac{\text{global production}}{\text{intermediate consumption in the purchaser's prices + employment costs + net taxes from producers}} \quad (2)$$

[4] Within this meaning, the alternative cost is the average profitability of capital in the agricultural environment



Source: author's estimations based on the Central Statistical Office (GUS), Eurostat, OECD (GUS 1995-2007, 2009; GUS 1996-2010a; GUS 1996-2010b; GUS 1996-2010c; GUS 1996-2010d; GUS 2000-2009; GUS 2012; Eurostat 2000-2007; OECD 1996-2010)

Fig. 2. **Dynamics of the capital resource productivity in agriculture and its environment in 1995-2009 including subsidies from the CAP (in PLN/1 PLN of resource)**

The author polemicises with an interpretation that the source of higher capital productivity (and economic rents) in agriculture in Poland is mainly the unpaid own labour of a farmer. It was found that the decrease of the labour input in agriculture did not necessarily have to indicate a fall of capital productivity. Economic rents develop as a result of the market valuation of capital and its expected rates of return, and not as a result of the own labour of a farmer, which is paid residually and not by the market of production factors.

3.2. Capital inputs productivity

The literature on the subject presents a well-known phenomenon of more effective transformation of inputs in the global production in agriculture compared with the other food economy spheres (Poczta, Mrowczynska-Kaminska, 2003; Grzelak, 2011).

As expected, the analysis of the financial outlays productivity represented by the CIP coefficient (Equation 2) confirms an advantage of agriculture which, in the long term, remains on a similar level of approx. 20% higher productivity (PLN 1.61 per input unit against PLN 1.34 in the Sphere II in 2009). However, it is subject to cyclical fluctuation compliant with the course of the business cycle in agriculture (Gorzelak, Zimny, 2010) (Figure 1).

This conclusion remains unchanged if one excludes the subsidies for agricultural producers from the analysis - the advantage of this sector over the rest of economy diminishes, although, it remains significant (PLN 1.50 per input unit versus PLN 1.35 in the Sphere I in 2009). As substantiated before, this difference results from the unpaid services of the land factor and partly the labour of farmers, although the second premise stands on a weaker theoretical ground.

What is puzzling, these are significant drops of the outlay productivity in the phases of the slump of the economy (years 1999, 2008) and the increases in better economic situation. It is also difficult to expect a change of the land factor utility, which according to the assumptions constitutes a premise of the above productivity. Therefore, the factors justifying the fluctuation shall be nominal changes connected with the price mechanisms. To put it simply, they convey the process of widening and narrowing of the price gap. Anticipating the facts, one can say that its basic cause is interception of rents by the environment of agriculture in the periods of weak market and the opposite flows into agriculture in the periods of its strengthening.

3.3. Capital resource productivity

A more effective transformation of inputs into effects translated, as expected, into higher productivity

of the capital in agriculture (Equation 1). Taking into consideration the fact that the analysis is being conducted in average values (treated as expected values), a large and increasing advantage of the agricultural sector over the rest of food economy in this scope is visible (Figure 2). The surplus productivity of capital amounted to PLN 0.03 in 1995 and to PLN 0.70 per resource unit in 2009. Therefore, the advantage of productivity increased from 9% to almost 137%. Subtraction of subsidies reduces the advantage (difference) to PLN 0.55 in 2009. However, it changes neither the increasing tendency nor the conclusions.

Not so much the absolute size, as such dynamic growth of the agriculture advantage over the environment in terms of profitability of the productive assets may raise a doubt concerning the data credibility. The jump in 2002 (the year of crisis in agriculture in Poland) is particularly puzzling. The next jump in 2004 may partly be justified with pro-efficient changes of structures in agriculture financed with the pre-accession funds and with the implementation of the stipulations in the 2000 Agenda in Poland.

In other words, potential utilities of well-being of the natural environment were recognised and direct payments were introduced, which resulted in dynamic increase of land prices. Nota bene, capitalising the subsidies in land prices is a phenomenon specific for the current simplified system of direct payments in Poland (SAPS - *Single Area Payment Scheme*). In the SPS system (*Single Payment Scheme*), present in most of the old EU-15 Member States, the introduction of area payments has an insignificant influence on the prices of agricultural land[5].

4. Conclusions

The above presented data confirm the main hypothesis of proposed new land rent concept. To sum up, capital productivity in agriculture is an important premise of the realisation of the sustainable development guidelines. However, the assumption that "the higher productivity, the better" is a big simplification of the issue. Occurrence of the rent of the capital invested in agriculture, which is not connected with "exploitation" of the labour factor, indicates changes of consumers' preferences towards the "sustainable consumption". The analysis of indexes of capital productivity in agriculture indicates such changes with reference to food produced (not necessarily consumed) in Poland since the "sustainability of consumption" depends on the level of the economic development. The surplus productivity of capital in agriculture creates the land rent substance and establishes the prices of farmland. It does not, however, remunerate the land factor on the conditions of disparity in the farmer's labour cost since it is consumed. Therefore, paradoxically rigid adherence to the principles of the sustainable development (i.e. maintaining *Single Area Payment Scheme*) in the CAP perspective after 2013, is not entirely rational (Czyzewski, Stepien, 2011). From the point of view of economic and social order, it seems that accumulation of capital in agriculture is more desired, provided that it does not disrupt the EU-wide environmental order. The models of demand for agricultural products and services are developed globally. Therefore, there is no reason to obey the environmental order only locally or regionally, and invest in it, if one already possesses some comparative advantages concerning the quality of agricultural products. It is not sufficient to pay the "backwardness rent" – it is better to capitalise it. Moreover, one needs to remember that sooner or later each rent vanishes and becomes an element of costs. Therefore, its occurrence should be used to introduce structural changes.

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SZCZECIN AS A TOURIST DESTINATION – USE OF ACCOMMODATION FACILITIES AND SUGGESTIONS FOR SUSTAINABLE DEVELOPMENT

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Abstract. The sustainable development is usually discussed in the aspect of future life on Earth and next generations' existence. However, in regards to cities that are also important for local development, the correlations and balance between culture, economy, and environment should be considered. In this paper, a matter of city functioning as a tourist destination, in an aspect of state and utilization of tourist infrastructure, is discussed. Presented diagnosis shows not only the current utilization of accommodation infrastructure of Szczecin, but also indicates prospective directions of city tourism development. It was stressed that city authorities should initiate such actions that would lead to a higher level of development through better use of existing resources. It means a proper usage of existing infrastructure, more closely connecting with natural resources, and special events organized out of the high season. Moreover, such activities would fit into the idea of sustainable development.
Key words: cities, development of tourism, local management, needs of visitors, tourism infrastructure.
JEL code: R58, M38

Introduction

The currently established idea of sustainable development for the most part is derived from pro-ecological (environmentally friendly) behaviours, the state of natural environment, and adequate use of the resources (Mickiewicz, 2010). The discussed balance then is in the aspect of further existence on Earth, considering fulfilling the needs of the humanity in a way that will not inhibit the ability of future generations' existence. However, it is important to remember that the balanced development is not to be reserved to only farmlands or countryside. Because of very wide variety of areas where people reside, there is a need to consciously shape the relations between the economic development, the state of the natural environment as well as artificial objects created by a man, and the quality of life of population living in areas of different nature (Grizans, Vegas 2010). For that reason, the role of cities in the development of particular areas is important to mention; areas leading to the economic growth. Currently the sustainable development is described in the aspects of integration of ecological, social, economical, spatial, and institutional order. In regards to the cities, the correlations and balance between culture, economy, and environment should be discussed (Skotarczak, 2010).

The regional politics of the European Union initially did not appreciate the significance of the cities. However, in the year 2006, the document titled *Politics of Cohesion and Cities* was issued, which emphasizes that economic growth is sustainable, when there are available resources designated to minimize poverty, social elimination, and problems in sphere of environment protection, directed both to countryside regions and cities. Those problems are closely related to functioning of the cities, where, on the one hand, the majority of the employment exists, and on the other hand, there is an imbalance between particular social groups, or differences in spatial development. Today, certain cities face variety of challenges. To strengthen the attractiveness of those cities, as the above mentioned document proposes, the transport and accessibility, admission to services (also cultural), widely understood infrastructure and natural environment are to be taken into consideration. Therefore, in this article the author discusses a thesis that a sustainable tourism can enhance development of city tourism using more effectively existing resources. The supporting theses that are proposed say that 1) cities do not need more infrastructure connected with accommodation; 2) there are existing natural resources that are not used to develop tourist attractiveness of the city.

Different attractions influence the development of the given territory- those natural related to climate and nature as well as artificial ones, being a result of human activity. In this paper, a matter of city functioning as a tourist destination is discussed in the aspect of state and utilization of tourist infrastructure, where the infrastructure is understood as a various kinds of objects and tourist facilities designed to serve guests visiting the given region. Therefore, the tourist facilities, accommodations with food courts (restaurants), and cultural objects are to be considered. The main subject of this article is accommodations availability in Szczecin discussed in the aspect of sustainable development of tourism.

Data discussed in the paper were gathered by desk research method along with records obtained from the Main Statistic Office in Poland (GUS), the Statistic Office of Szczecin, and Tourism Institute. Presented diagnosis shows the state and utilization of tourist accommodation infrastructure of Szczecin, being a part of a tourism product (Altkorn, 1955), which, in turn, allows for directing ways of sustainable development of city tourism.

Szczecin as a tourist destination

Deep economy crisis in last years influenced also the tourism branch. However, according to the data from

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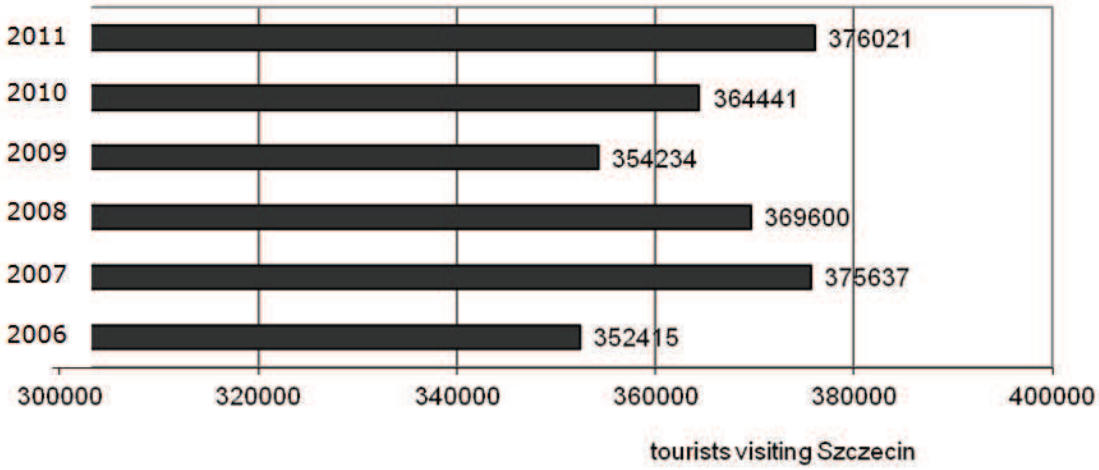


Source: author's elaboration based on Statistics Office of Szczecin data.

Fig. 1. **Accommodations provided for tourists visiting Szczecin in years 2006-2011**

Table 1

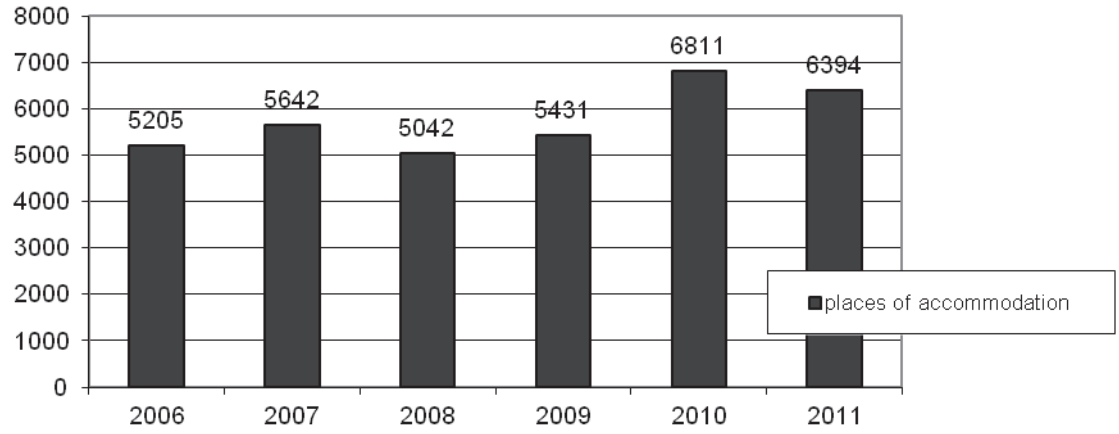
Number of accommodations in Szczecin in respect to the kind of facility (2006-2011)

	2006	2007	2008	2009	2010	2011
All facilities	**43**	**46**	**42**	**42**	**51**	**47**
Hotels	17	18	18	19	19	19
Other accommodations	13	15	13	12	14	12
School youth shelters	4	4	4	4	4	2
Educational/recreational centres	0	0	0	0	0	1
Hostels	–	–	–	0	1	1
Tourists cottages centres	1	1	1	1	1	1
Campsites	1	1	1	1	1	1
Campsite fields	0	0	0	0	0	1
Unclassified accommodations	7	7	5	5	11	9

Source: author's elaboration based on Statistics Office in Szczecin data.

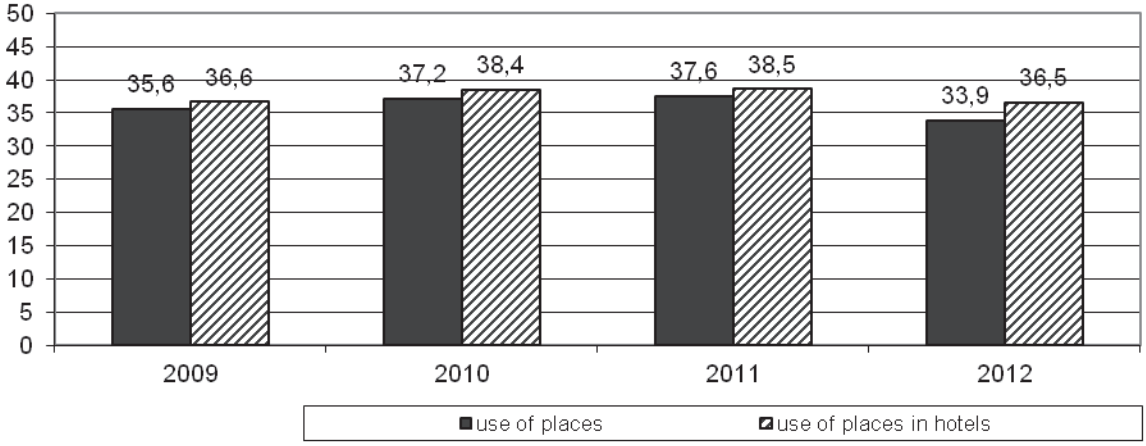
Institute of Tourism, in the years 2011 and 2012, there was an increase in the number of incoming tourists. However, comparing the year 2010 and 2011, there is a noticeable 5% increase in the number of accommodations served to tourists (www.mrr.gov.pl). Statistic data also claim that 19% of all tourists visit Poland for tourism purposes, while 18 % are those who come to visit family and friends; 25 % - for business reasons, and 10% as shopping visitors. The average length of foreign tourists stay in Poland is 4 days; in particular, this trend applies to guests from Germany. The longest stay in our country is amongst those arriving from overseas, like the USA or Australia (average 12 days). 2-day stays are more characteristic for citizens of countries like Russia, Belarus, or Ukraine (www. intur.com.pl).

Szczecin is an example of city community, which refers to a typology of Polish communities as rural communities, where no locations with status of a city exist, rural-city communities, and city communities. According to this division there are 306 city communities in Poland, that is about 12% of all administrative units (Bogdanov). Szczecin, as the third in respect to area and seventh in respect to population (410,000 citizens) city in Poland, is an economic, tourist, and educational centre of the region. Located 65 km in straight line from the Baltic Sea and 150 km from Berlin, for tourists Szczecin is associated with leisure by the seaside, and for international tourists, for example German or Scandinavian, often is perceived as an attractive destination for less expensive shopping and as a business destination. In the year 2011, the number of tourists was almost as large as the number or citizens - over 370,000 guests came for tourism purposes. Wherein it is necessary to clarify that a tourist is a person that used at least one night stay, whereas a person that does not stay in hotel or likewise accommodation is referred to as a visitor. According to the GUS data, the dimension of tourist traffic, that took place in Szczecin in years 2006-2011, was rather unstable (Figure 1). In the year 2011, however (after long declines), increase in the overall number of tourists (people staying in the city at least 1 night) was noticed, which was higher than the best in the studied period year 2007



Source: author's elaboration based on Statistics Office in Szczecin data.

Fig. 2. **Places of accommodation in Szczecin in years 2006-2011**



Source: elaboration based on the data acquired from Statistics Office in Szczecin.

Fig. 3. **The scale of use of accommodation establishments in Szczecin (in percentage)**

(respectively, 376 021 and 375 637 people). After few years of decrease, the number of international tourists visiting Szczecin has also grown – in the year 2011, the number came to more than 132 000 people.

In 2011, 19 hotels, 12 other accommodation facilities as well as shelters and campsites were offered at tourists arriving to Szczecin disposal (Table 1). Amongst hotels, there were objects of category 3-stars mainly (6); also the origination of a hostel is worth to notice.

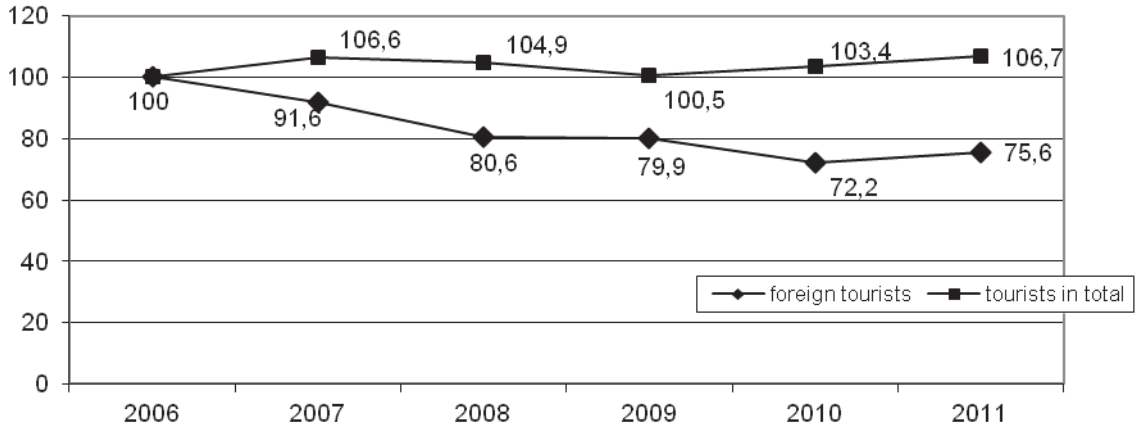
When analysing the accommodation infrastructure, one ought to pay attention not only to the number of facilities in the above categories, but also to their capacity (the number of available beds). In 2011, in Szczecin there were 6 394 places of accommodation, which accounts for 98% in comparison with spaces available in the year 2010 (Figure 2).

In the studied period, there is a noticeable drop in the number of guests in tourist accommodations, which points to conclusion, that on the one hand, there is a growth in the number of tourists, but on the other hand, there is an increase in the number of accommodation as well, which results in disadvantageous tendency of accommodation use. It is worth of noticing that overall indicator of unused accommodation comes to 65% (Figure 3).

The evaluation of accommodation use in particular areas in a significant aspect that stipulates seasonality of arrivals. Of course, summer holiday season traditionally is a travel time, but even in that period the accommodation potential is in large number unused. The best month is August (places are used in avg. 47%), the worst – January (use on the level of avg. 24%).

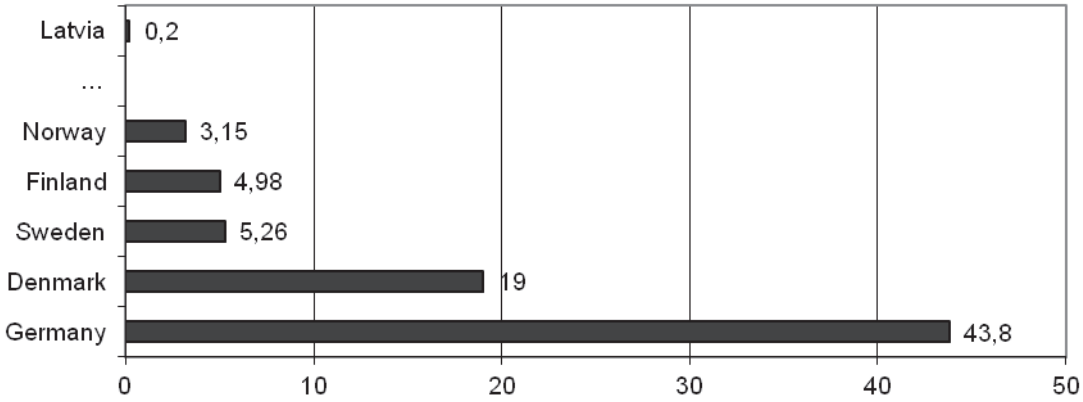
Insufficient exploitation of tourist base can be explained in part by negative dynamics of foreign tourism in Szczecin in prior years. If referring to the year 2006 as a 100%, then up until the year 2010 one notices a drop in the number of international tourists and with a slightly better indicator in the year 2011 (Figure 4). However, low number of international tourists seems to be compensated by national visitors, hence – as mentioned – overall dynamics of tourist arrival today do not show so pronounced go down tendencies.

Interesting tendency here is a variety of tourists arriving to Szczecin in regards to nationalities. In spite of observed decrease in the number of visiting tourists



Source: elaboration based on the data acquired from Statistics Office in Szczecin.

Fig. 4. **Dynamics of overall tourist arrivals and foreign tourist arrivals to Szczecin in years 2006-2011 (2006=100)**



Source: elaboration acquired from Statistics Office in Szczecin.

Fig. 5. **Foreign tourists who visited Szczecin in 2011, divided by a country (as a percentage of all tourists)**

in course of prior years, still a prevailing number of international guests are Germans – in 2011, the number was almost 58 thousand, which accounts for on average 44% of overall international tourists. Second place is taken by guests from Denmark – slightly over 25 thousand (19%), and the third spot - citizens of Sweden in the number of almost 7 thousand (5.26%). In 2011, clearly noticeable was the increase of tourists from Finland, which could have been the result of European Championship in Swimming held at that time in Szczecin, in December 2011. From Latvia there were 266 guests in 2011. The above topic is illustrated in Figure 5.

In 2011, an average length of stay in registered accommodation facilities in Szczecin was 1.87 of the day. Polish tourists spent 1.94 of the day in the city, whereas foreign tourists - 1.74. Comparing to the data up to the year 2010, it can be noticed, that the average length was affected by minimal decrease, especially duration of the stay by national tourists (from 2.11 in 2010 to 1.94 in 2011) was shortened. An average stay of foreign tourists was somewhat on similar level. Dropping values of numbers corresponding to the length of stay might be caused by treating Szczecin as a transit city (on the way to Scandinavia or Germany, for example), and for that reason not as a target destination, or also treating Szczecin as a shopping spot, and thus not considering as a place for longer stay.

Discussion

Tourism occurs when people are voluntarily relocating, without external pressure, in specified direction or designation. Therefore, tourism industry is social-economical phenomena manifested by physical, periodical, and spatial relocation of visitors from their permanent residence. The basis for those relocations inheres in needs, which are the essence of the tourism. Varieties of tourism, together with development of its occurrence, undergo constant transformations, for example, increasingly it is said about business, congressional, motivational or religious relocation, etc. Dynamics and development of tourism movement depend on many factors and are closely connected with social-economical changes, together with geographical location

and tourist infrastructure, and – as it was mentioned – with accommodation facilities and transportation.

Regardless of the improving situation of the tourism branch, growth of the prices and moods in Europe may hinder the arrivals of international tourists, which are becoming more frugal on the one hand, and on the other hand – are expecting better value than before. In case of guests from Germany, negative impact on arrivals is also caused by lack of boarder region development strategy on Polish side encompassing West Pomerania Region and Meklemburg - Vorne-Vorpommern and Brandenburg (poorly developed rail and road infrastructure, lack of common diplomatic posts that have been planned for many years). Moreover, it ought to be mentioned that Germans are intensively promoting their own internal tourism – German Centre of Tourism lately created a ranking of 100 the best destinations in Germany and made it available as a mobile phone application (www.germany.travel). Thanks to that, German tourists and the ones from outside Germany can be currently informed about interesting events as well as can collect information about tourist attractions. This can influence tourist arrivals to Poland, therefore - as well to Szczecin. To attract tourists to Poland is another issue. Many people travel to the Baltic Sea (100 km from Szczecin), however not many of them decide to stop at the city for couple of days. Situation could be somewhat improved by more detailed information about city attractions, but in the kind of information that is easily accessible. Perhaps activities of local authorities could be connected with existing already possibilities, like access to information about the objects in the city by an application ”known unknown” accessible by mobile iPhones and other with Android platform (http://wspolpraca.znanenieznane.pl). Thanks to that, the user could find information about tourist accommodation, gastronomic facilities, or historical attractions; book online reservations as well as post reviews about visited locations.

Thus, the question ought to be asked: what a city can do, to attract tourists and make them stay longer. Seems like there is a need to point few major courses of action:

1) more intensive promotion; 2) accommodation offers according to needs; 3) improvement of city aesthetics.

Big event in Szczecin - Tall Ship Races, that took place in year 2007, attracted about 2 million guests (www.szczecin2007.pl/regaty2007), yet there were a few from abroad who decided to stay for a night using available accommodations. That proves that there is still insufficient promotion, although it cannot be said that it does not exist. However, the promotion is provided by diplomatic posts and often focuses on narrow groups of recipients (like theatre or Chopin music enthusiasts). Nevertheless, mass events require mass information. It seems that the fact that from the year 2006 the number of German guests is dropping, even though Szczecin is located 15 km from Polish-German border, should be acknowledged as a defeat.

Thanks to modern technologies, tourists have an access to many offers, which of course causes the situation that if they decide to come, they are able to select the best one. Therefore, the city authority should support tourist organizations, culture, and recreation centres as well as places of accommodation, by spreading information about what these city visitors are expecting. Thanks to this, service providers will be able to change their offer according to consumers’ expectations. Such study of tourists’ needs, requested by the City Council, was conducted in the second half of the year 2012, and it is to be expected that the results will be accessible to improve tourism development. Certainly, those that are the most interested in this problem, like hotels, should conduct studies on the needs of tourists. That could show for example, that thanks to modified offer foreign tourists, instead of coming only for business purposes, will travel with families and stay longer, because they found something interesting. It could apply to tourists from west side of Polish border who less often arrive to visit places that before belonged to Germany (prior to World War II Szczecin belonged to Third Reich). Nevertheless, German history of Szczecin could indeed be highlighted and connected with something for young Germans, and not only for their grandfathers (Poria, Airey, Butler, 2001). Based on the data of tourists’ requirements, chains of organizations providing complex services could be set up, like touring on pre-war Szczecin combined with Polish language course, or local culinary specialties course. Number of ideas here seems to be limitless (Presenza, Cipollina, 2010). However, joint actions must be initiated by city authorities, because the majority of accommodations are family based operations, the same very often applies to gastronomic facilities (Zeher, 2011); that means that they are not prepared to conduct a market study, frequently also they cannot see possibilities in cooperation with different service providers - seemingly – completely unrelated to their branch.

It should be noted that a big ailment of the city is its lack of the spatial order and general aesthetics. That refers as well to the spots like train terminals, bus stops, as to areas surrounding tourist objects (like West Pomeranian Princes` Castle). Neglected surroundings, waste, and not renovated buildings cause repelling impression and do not tend to re-arrivals. It appears that such issues cannot be left without intervention, because it is a local government that shapes the development of politics of their region, encompassing development of tourism (Malkowski, 2007; Hernik, 2011). It is worth mentioning that the support of small business (instead of the large one, interfering in the natural resources) is a part of the policy of sustainable development. For that reason, the city authority ought to support small and medium tourist business, should organize interesting events, and deliver adequate information as well as appropriate legal regulations forcing responsible individuals to maintain good city image (Socher, 2001). Certainly, that will positively affect the experience of every tourist (Jauhari, Sanjeev, 2010).

In practice, this means, for example, that the hotels should possess materials about the city not only in English language, but also in German, Danish, Swedish, or Finnish, since we host that kind of guests. Moreover, the city should organize interesting (attractive) events outside the tourist season, and this could improve the use of accommodations in winter months (as mentioned, in January the use is 24%). Currently, according to web portal www.szczecin.eu, in months like December or

January no event takes place (beside Acustic Festival taking place in January). Also in February the only attracting happening is Crazy Slide – Szczecin Slide on Anything - event gathering individuals building unusual snow vehicles. Besides these episodes, there are no events planned, hence, why tourist would want to travel to Szczecin? Certainly, the situation looks better in summer months, but it seems that still there is a lack of widely available information about what is happening. It could also be added, that the tourism offer of the city is worth of supporting with the argument that 40% of its surface enclose rivers, a bay and lakes. Owing to that, water sports and beach enthusiasts could be encouraged to stay in the city that provides more opportunities for interesting time spending in case of foul weather than a stay by the sea. For active tourists, information that Szczecin is surrounded by three specific wild forests (called Wkrzanska, Bukowa, Goleniowska), would be interesting as well, yet today none promotional material mentions this fact. When proposing courses of action for sustainable development of a city tourism, meaning rational use of artificial (man-made) and natural resources, one ought to emphasize that currently unused elements of infrastructure exist, which could be utilized. Consequently, it can be said that to attain a new quality level of development, Szczecin currently does not need larger number of hotels, museums, or gastronomic facilities; it seems that the equilibrium between those elements has been accomplished. Instead, the city needs interesting events targeting wide range of visitors and consumers; and these events should include green and natural areas of the city. Besides, the city needs a revitalization of neglected buildings (or even all quarters). Above that, it also needs a collaborative, integrated promotion for international tourists that would allow for better, more rational use of environmental and non-natural resources.

Conclusions

The article presents an attempt of connection the utilization of city accommodation infrastructure with assumptions of sustainable development. The objective here is to present the quantitative status as well as the level of utilization of accommodation facilities in Szczecin in the aspect of tourism development and sustainable city growth. The result of conducted analysis highlights that Szczecin commands unutilized accommodation recourses; the lowest rate of use is noted in January and February. For that reason, city authorities need to initiate actions that would lead to a higher level of development through better use of accessible recourses. These actions would inscribe in the idea of sustainable or supporting economic growth, existence. Therefore, the articles proposes possibilities how to organize interesting events in winter months, intensify revitalization of neglected objects and improvement of city aesthetics as well wider available information about opportunities of interesting ways for spending time. The stated in the beginning thesis that a sustainable tourism can enhance the development of city tourism appears to be proved. The supporting thesis that urban areas do not need more infrastructure connected with accommodation is also substantiated. Finally, the thesis, that despite the city character, variety of natural attraction can be used to enrich an offer of a city as tourist destination, seems to be sufficiently demonstrated.

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EU FUNDS FINANCING FOR MEMBER STATES

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Abstract. Facilitation of regional development has been applied in most of the EU Member States since the 50s of the 20th century, and it is based on the regional policy. With the help of regional policy, the EU corrects the free market to allocate resources from prosperous to poorer territories. The aim of these measures is to enhance underdeveloped regions and to improve the socio-economic conditions in them. *The EU funds are a tool for implementing regional policy: applying of enhancing investment introduction methods can ensure the growth of particular industries of the state and its regions.*

From 2000, the EU Member States use significant financial resources that have improved the socio-economic indicators of the Member States. Economic and social inequality among the Member States has increased due to the expansion of the European region in 2004, because the new Member States significantly lag behind the level attained in the old Member States. Economic and social differences in the regions are significant. For the EU funds to create beneficial changes in the development of the Member States, an equal distribution of funds among them is necessary. The EU Member States that accessed to the EU in 2004 and 2007 have not coordinated the development priorities with the goals determined by the use of financing of structural funds because the long-term contribution of the investment has not been evaluated, but short-term problems are solved.

The goal of the research is to compare the planned EU funds financing in the Member States and their groups in different periods. The EU funds financing to the Member States starting with 2000 was analysed, because this is the year when a new EU funds acquisition period started.

Key words: funds financing, distribution of financing to Member States, GDP, number of population.
JEL code: O47, O52

Introduction

According to *Eurostat* data, at the beginning of 2010 there were 501 mln inhabitants in the region of the EU-27 Member States. Member States receive financial support according to convergence requirements. The impact of the EU funds on various development indicators of the Member States has been researched by theoreticians and practitioners of economics in the EU states, evaluating the contribution of the funds as well as stating different problems that have appeared during the funds acquisition process.

S. Rynck, P. McAleavey (2001) emphasise not following the solidarity principle in allocating funds. Member States that have invested significant amounts of money in the common EU budget are willing to receive them back with the help of the funds, not taking into consideration the convergence principles. When analysing the benefits of Poland when accessing to the EU and using the EU funds, A. Mickiewicz and B. Mickiewicz (2010) conclude that along with the use of the EU funds in agriculture, farmers' income has increased, a positive impact on the labour market has been observed, creating new work places and creating favourable development in the other industries. In the period of 2003 – 2007, the export of Polish agricultural production increased by 230%, but the import – by 125%; in 2000 – 2008, the revenues in agriculture increased by 90%. The use of funds has caused a significant flow of investment, which fastened modernisation of rural farms, yet the small area rural farms, where the cultivated land is 35 ha, are not beneficial for production, as a result of which the viability of small farms is endangered. The authors of the research offer a solution – cooperation. P. Kobus (2010) has researched grain crops in the EU Member States and has concluded that the EU funds financing to Member States has facilitated increase of crops over the period 1961 – 2008. The most favourable changes in the yield indicators were observed in Ireland, Denmark, Belgium, France, Germany, the Netherlands, and the United Kingdom. Cyprus, Greece, Portugal, Spain, Estonia, Latvia, and Rumania demonstrate the lowest harvests. P. Kobus relates the favourable changes to the dependence of the crops on various factors: better technology, new sorts, high quality fertilizer and protection means, etc. The distribution of the financing of the EU structural funds between the Member States and their impact in different industries have been researched by I. Vaidere (2010) who has evaluated the perspectives of the common gricultural policy in Latvia and the Member States; and I. Haite (2010) who has clarified the opportunities for sustainable development in Rezekne city of Latgale region through attracting the EU funds financing. The impact of the EU Structural and Cohesion Funds on the economics of Latvia has been analysed by V. Tetere (2009), but S. Cingule and I. Latviete (2010) have compared the opportunities offered by the EU in the use of structural funds in Latvia and Ireland. Comparing the benefits of both Member States, the authors conclude that a large difference in the economic growth of the largest beneficiaries of funds can be clearly observed, e.g. the development level of Greece does not approve the expectations placed on the positive role of the EU funds and make to conclude that seemingly free of charge money does not automatically provide a

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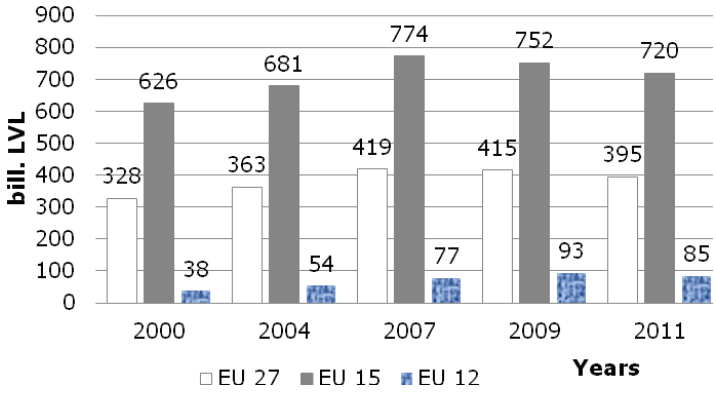


Source: author's calculations based on Eurostat

Fig.1. **Average indicators of the EU Member States groups in 2000, 2004, 2007, 2009, and 2011**

faster economic growth. In Ireland, a significant part of the EU funds financing – approximately one third - was allocated to human resources development projects. Other countries allocated less than one fourth of the funding to this priority, instead emphasising investment in the physical infrastructure.

Researchers have emphasized the most important problems of the EU Member States that should be solved by the EU funds to create favourable changes in the development of the Member States. A significant part of the problems relate to an equal distribution of funds among the Member States, to incomplete development policies, production efficiency and capacity of the Member States to acquire the funds, to the development priorities determined by the Member States, and internal forms of cooperation between enterprises and institutions. The most typical problems of the Member States are:

— development levels among the EU Member States are significant, the EU funds are a tool to reduce the differences among the levels;
— the EU funds' financing is significantly different between the Member States, it does not allow levelling out the economic differences between them;
— the 12 EU Member States that accessed to the EU in 2004 and 2007 have not coordinated their development priorities with the support directions provided by the structural funds;
— allocating the funds' financing for solving internal problems, the Member States do not evaluate contribution to sustainability but are trying to solve short-term problems.

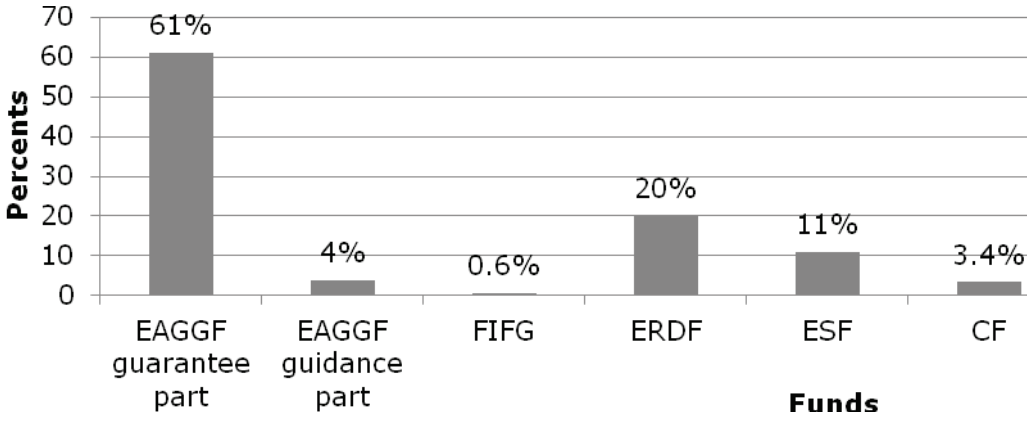
A common opinion of the theoreticians and practitioners of economics V. Marikov, H. Baloul (2006); A. Mickiewicz, B. Mickiewicz (2010); P. Kobus (2010); S. Rynck, P. McAleavey (2001); S. Cingule, I. Latviete (2010); I. Vaidere (2010); I. Haite (2010); V. Tetere (2009) is positive when evaluating the importance of the funds in enhancing economics.

Research results and discussion

GDP is an indicator of economic welfare that allows evaluating the economic activity and development. When evaluating the available *Eurostat* information about average GDP indicators for the periods of 2000-2006 and 2007-2011 in the Member States, for the comparison, the author grouped the Member States by their similar characteristics – the EU 27 (all EU Member States), the EU 15 (Member States that were in the EU until 2004 or the "old" Member States), and the EU 12 (Member States that accessed to the EU in 2004 and 2007). The average GDP of all the groups was calculated irrespective of the time the Member State accessed to the EU. The mutual comparison of the average GDP indicators of the groups allowed determining the different development levels of the Member States. The analysed periods are related to the use of the EU funds in the Member States. The average GDP indicators in the period 2000 – 2011 differ significantly among the Member States groups (Figure 1).

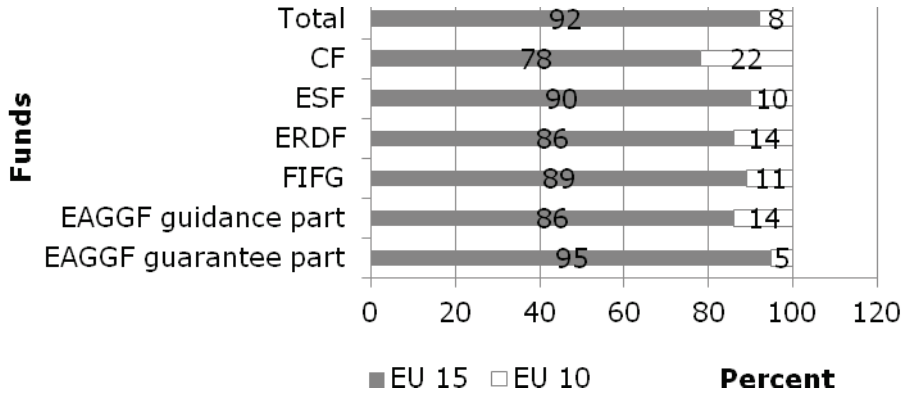
Comparing the GDP indicators of the groups and the changes of the indicators, the following conclusions can be made based on the information presented in Figure 1:

— in all three groups the GDP average indicators have increased until 2009, and after that have decreased as a result of recession; in 2011, the growth began again but the size between the groups and the growth between the periods differ significantly;
— the differences of the GDP indicators of the EU 12 and the EU 15 Member States groups in 2000 – 2007 were 10 and more times larger; in the period of 2009 – 2011, the differences between the average GDP indicators in the Member States groups have reduced by approximately eight times over three years, which indicates that in the Member States of the EU 12 group a rapid economic growth is taking place;
— the EU 12 Member States group exhibits a rapid growth of the average GDP between the periods, and on average per year it is 12%, whereas in the EU 15 Member States group it is 15%. The average GDP percentage growth per year in the EU 12 Member States group can be explained by the use of the available EU funds financing when the financing available to the Member State has increased faster than the number of the employed;
— as a result of recession, a reduction of GDP average indicators is observed in all the three groups from 2007 till 2011, however, the amount of reduction



Source: author's design based on Busch, 2008

Fig.2. **Distribution of the EU funds to the Member States in the period 2000 – 2006**



Source: author's design based on Busch, 2008

Fig.3. **Distribution of the EU funds between the EU 15 and the EU 10 Member States groups in 2000 - 2006, %**

differs. For the EU 15 and the EU 27 groups, it is 4%, whereas for the EU 12 group – 8%, and it indicates the instability of the EU 12 economics in case of crisis, which is not observed in the EU 15 Member States group.

The use of the EU funds financing itself does not mean anything, it is important to choose an appropriate form of the use of the EU funds, which depends on the goals of the regional policy of the Member State. Comparing the average GDP growth of the EU 12 Member States group between the periods, the author concludes that the rapid growth of the EU 12 and the balanced average GDP growth of the EU 15 are related to the use of the EU funds and reveals the importance of the EU funds in enhancing the development level and that the EU funds can be considered as economic facilitators.

To reduce regional differences, in the period of 2000 – 2006 the EU Member States had access to financing of various funds. The author analysed information about the planned EU funds' financing and support to agriculture of the Member States in 2000 – 2006. Information was obtained from the Internet environment virtual library publications site "Europa" (Busch, 2008). In the funds' planning period 2000 – 2006, the EU consisted of 25 Member States: the EU 15 "old" Member States and the EU 10 "new" Member States; the data used for the comparison of the period are compared between the two groups as well as among the Member States.

In the period of 2000 – 2006, EUR 512.9 bill. was allocated to the Member States from the EU budget. The financing of structural funds (EAGGF, FIFG, ERDF, ESF, and CF) accounted for EUR 201.2 bill. of this amount (Figure 2). The distribution of financing reflects the priorities of the EU funds budget: 65% were allocated to agriculture, 20% - regional cohesion, 11% - to levelling out social conditions between the regions, 3.4% - to levelling out the economic and social differences between the regions, and 0.6% - to the development and modernisation of fishery industry.

Comparing the financing in the period 2000 – 2006 over various categories of funds and their distribution between the Member States groups, the following conclusions can be made (Figure 3).

— 92% of the total financing was planned for the EU 15 Member States group and 8% - for the EU 10 Member States group. The difference is significant,

but it has to be taken into consideration that the 10 "new" Member States accessed to the EU in 2004, and only two years and eight months were left until the end of the use of the funds, which limited the opportunity to use a larger part of financing.

— It was anticipated that all the EU 25 Member States will receive EUR 311.7 bill. from the guaranteed part of the EAGGF, which is the largest financial support part – 61% of the total financing; these are different support measures to provide competitiveness of agricultural production. However, the amount of financing differs between the Member States groups – it is 63% for the EU 15 and 37% - for the EU 10. The EU 15 Member States – France, Germany, Spain, and Italy – receive the largest part of financing, which allows concluding that the distribution of financing has a very little impact on the EU 10 Member States . The coordination of direct payments at the level of the European Commission is still topical, and the situation that has developed does not facilitate fair competition among the Member States in the single market.

— In the EAGGF direction part, the distribution of financing between the Member States groups differs – the largest part of financing - 95%, was planned for the EU 15, but 5% were planned for the EU 10. It was planned to finance measures for the development of structural policy and rural regions with the support of the funds. Comparing the amount of financing between the Member States in the direction part, the EU 15 Member States –Germany, Spain, and Italy –were anticipated to receive the largest part of financing.

— The ERDF financing (Figure 3) for all the EU 25 Member States was planned in the amount of EUR 104 bill., which is 20% of the total EU funds amount. In the distribution of financing between both Member States groups (Figure 3), in the EU 10 it is 14%, whereas in the EU 15 – 86%. The distribution of financing should correspond to the determined goals of the EU regional policy, which provided the use of ERDF in the Member States that have the lowest macroeconomic indicators. The distribution of financing between the Member States groups allows concluding that regional policy was directed toward the EU 15 Member States in this period, facilitating the less developed states and their regions of the EU 15 Member States.

— The ESF (Figure 3) was used in all the 25 Member States, and in total it was planned EUR 55.6 bill., which is 11% of the total financing. In the distribution of financing, 10% were planned for the EU 10 and 90% for the EU 15 Member States group. The distribution shows that the need of the EU 15 Member States for financing to reduce regional differences was taken into consideration.

— Within the framework of FIFG (Figure 3), the financing planned for the EU 25 Member States was 0.6% of the total amount, which was EUR 3 bill. In both Member States groups, financing differs significantly. The EU 15 Member States group was planned to receive the largest support – 89%, whereas for the EU 10 Member States group it was 11%.

— It was planned to use the Cohesion fund for 21 Member States in the amount of EUR 17.5 bill., which was 3.4% of the total amount (Figure 3). In the distribution of financing, the EU 10 were planned to receive 22%, whereas the EU 15 Member States group – 78%. The use the CF financing in the Member States must correspond to the goal of the funds financing allocation. As Figure 3 depicts, the EU Member States, in comparison with the other funds, have the largest distribution of financing between the both Member States groups.

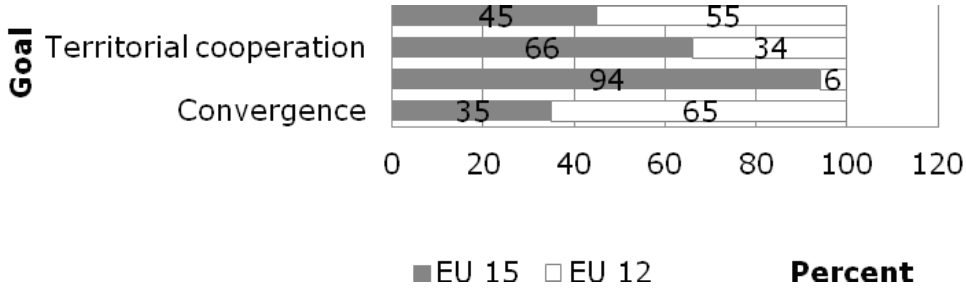
Summarising the compared EU funds' financing to the Member States in 2000 – 2006, the author concludes that the distribution of funds financing for agriculture is not equal and it differs not only between the EU 15 and the EU 10 Member States groups but also between the Member States of the EU 15 group, where the dominating position of the largest Member States: Spain, Germany, Italy and France is observed. In the distribution of the ESF and the ERDF funds, a similar connection is observed – the largest financing is received by Spain, Germany, Italy, and France, which allows concluding that these Member States have a significant impact on the distribution of the financing of the ESF and the ERDF funds. In the period of 2000 – 2006, the EU regional policy was directed to the development of the EU 15 Member States, facilitating the less developed states of the EU 15 Member States group and their regions with the help of the EU funds.

Evaluating the distribution of the planned EU funds financing in the period 2007 – 2013 between the Member States groups, information about the volumes of the EU funds financing to the Member States in the 2007 – 2013 period available on the Internet regional policy site "Europa" was used (Cohesion policy, 2007).

The number of the Member States changed in 2007 – 2013, as in 2007 two more Member States accessed to the EU. Their economic development was similar to the economic development of the countries that accessed to the EU in 2004, thus in the 2007 – 2013 period of the use of the EU funds, the need for a larger EU funds financing increased in order to implement the goal of the EU regional policy and to balance the differences between the Member States.

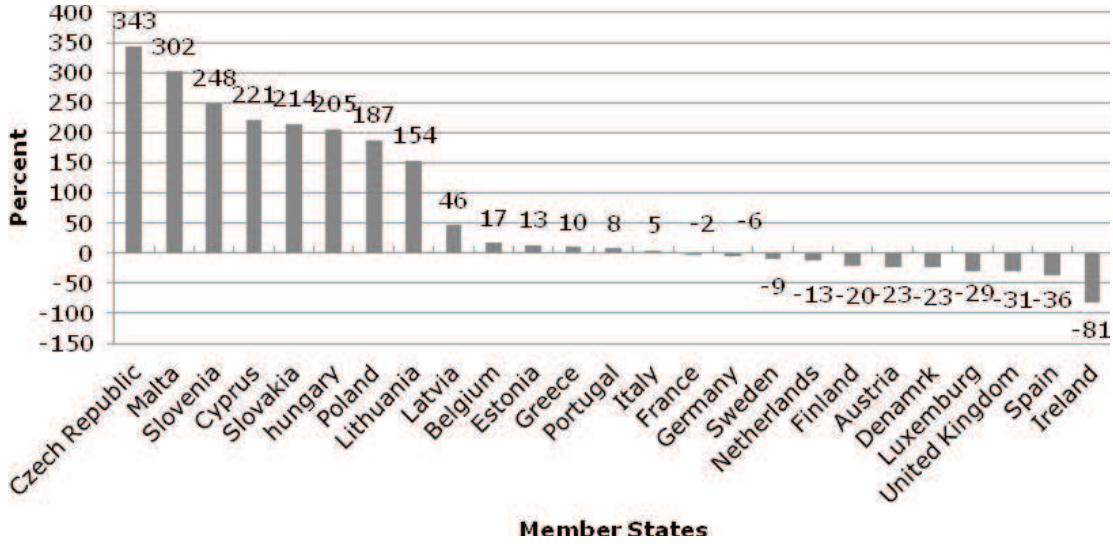
The comparison of financing between the Member States groups in the period 2007 – 2013 indicates that the defined goals of the EU regional policy and their attainment criteria are aimed at facilitating sustainable growth, competitiveness, and employment, as it is provided in the renewed Lisbon Strategy.

The EU funds financing in 2007 – 2013 period together with the technical support and interregional solidarity programme is EUR 347.4 billion. Financing can be used for three purposes: to attain the convergence goal – EUR 284.4 bill. (82% of the total financing), for competitiveness and employment – EUR 53.1 bill. (15% of the total), territorial cooperation – EUR 8.31 bill. (2% of the total), but 1% of the total financing will be allocated for technical support. In this period, the distribution of the financing is balanced between the two Member States groups (Figure 4). In the EU 15 Member States group, it is 45%, whereas in the EU 12 Member States group it is 55% of the total financing of funds.



Source: author's calculations based on the Cohesion policy, 2007

Fig.4. **Planned EU funds financing to the EU 15 and the EU 12 Member States groups in the period of 2007 – 2013**



Source: author's calculations based on Busch, 2008; Cohesion policy, 2007

Fig.5. **Increase/reduction of the EU funds financing during 2000 – 2006 and 2007 – 2013, %**

Within the framework of the Convergence goal, the Member States should use the financing so that it facilitates the growth potential, maintains and achieves a high development rate, prevents basic infrastructure problems, and strengthens institutional and administrative capacity. The distribution of financing between the Member States groups (Figure 4) is 35% in the EU 15 group and 65% in the EU 12 group. When implementing this part of the programme, the main task is to create such conditions in the territories of less developed Member States and their regions that their development level would get closer to the average EU development level.

Within the framework of competitiveness and employment, it is important to enhance growth and creation of work places in different industries of the Community. In the distribution of financing between the Member States groups (Figure 4), it is observed that in the EU 12 group financing is 6%, whereas in the EU 15 Member States group it is 94%.

The goal of territorial cooperation is of utmost importance for providing balanced and sustainable development in the territory of the Community. In the distribution of financing between the Member States groups (Figure 4), in the EU 15 Member States group the financing is 66%, whereas in the EU 12 Member States group – 34%.

Summarising the comparative indicators of financing in the period of 2007 – 2013 between the Member States groups, the author concludes that the distribution of financing between the EU 15 and the EU 12 Member States groups is more balanced than it was observed in the period of 2000 – 2006. However, the economically stronger EU Member States France and Germany maintain a large impact on the distribution of financing, as these Member States have received a significantly larger financing in their activity programmes than the other Member States.

Comparing mutually the planned EU funds' financing of the periods 2000 – 2006 and 2007 – 2013, which is summarised in Figure 5, it can be concluded that the distribution of financing to the Member States differs. Comparing the panned financing to Member States in 2007 – 2013 and in 2000 – 2006, the Czech Republic has the largest growth – 343%, then comes Malta – 302%,

Slovenia – 248%, Cyprus – 221%, and Hungary – 205%, whereas the planned amount of financing for Latvia will increase only by 46%. On average, the volume of the EU funds financing has increased by 1.7 times among all EU Member States in the period 2007 – 2013. Comparing both periods, a reduction of financing is also observed: it is planned that in the period of 2007 – 2013, Ireland will receive by 81% less, Spain – 36% and Luxembourg – by 29% less than in the previous period. In 2007 – 2013, the regional policy is aimed at the development of the EU 12 Member States group.

The goal of the regional policy is to reduce regional differences; nevertheless regional policy implementation is developed through inter-state negotiations where interests of the states dominate. However, it has to be taken into consideration that it is impossible to reach the same economic level as the EU 15 Member States group has just over seven years. The prosperous EU Member States have developed their economic strength since the fifties of the 20th century, and during that time, regional support was not available in the amount it is now. As the economists J. Bradley, G. Untiedt, J. Zaleski (2009) consider, those EU 15 Member States that pay the largest part of financing into the EU budget gain a significant profit as a result of trade expansion with the EU 12 Member States, since the export of the EU 15 Member States has increased significantly and has even more affected the total development level of the EU 15 Member States.

The author of the research compared the planned EU funds financing in the Member States in the periods of 2000 – 2006 and 2007 – 2013, evaluating its volume per Member States GDP indicators, the number of population, and the size of the territory.

The EU funds financing in the Member States differs *per 1000 EUR GDP* in the period 2000 – 2006. Two similar characteristics groups can be distinguished: with little/ with large EU funds' financing per selected indicator. If compared between the two Member States groups, the EU 15 Member States group has little EU funds financing. It is explained by the fact that there are the largest GDP indicators in these Member States, and it approves that the Member States have high productivity. Financing to the EU 12 Member States group should be evaluated as significant and approves the low productivity in the Member States and the low competitiveness at the international market, and it exceeds the average EU level up to six times.

In the period of 2007 – 2013, the EU funds financing per 1000 EUR GDP to the EU 12 Member States fluctuates within EUR 20 – 37 thou because the economic growth rates in the Member States have increased rapidly due to the impact of the use of the EU funds financing in the previous period, but the economic growth has not reached the level of the EU 15 Member States group yet. The EU funds financing per 1000 EUR GDP in the EU 15 Member States is between EUR 0.39-5 thou, which compared to the EU 12 Member States group is four to nine times smaller. The funds financing to the EU 15 Member States group has reduced in this period if compared with the previous period. On average, in the EU 27 Member States it is EUR 4.2 thou. The significant differences indicate the still existing low economic development level of the EU 12 Member States, which was impossible to be balanced against the EU 15 Member States during the EU funds financing period of 2000 – 2006.

Per 1000 inhabitants. The EU 15 Member States group had the largest EU funds financing in the period of 2000 – 2006. The EU 12 Member States group had the least EU funds financing per 1000 inhabitants. On average, the financing in the EU 27 Member States per number of population has decreased by 34.5% in the period of 2007 – 2013, which can be explained by the EU expansion process in 2004 and 2007. The reduction of the EU funds financing to the EU 15 Member States in the period of 2007 – 2013 can be explained by allocating financing to convergence goals for levelling out differences between the less developed regions.

The EU funds financing per number of population to EU 12 Member States has significantly increased in 2007 – 2013 if compared with financing in 2000 – 2006. The free labour force mobility among the EU Member States has facilitated the flow of the population to the developed regions giving the inhabitants the opportunity to increase their level of life by earning more, whereas less developed territories lose one of the most necessary resources for developing economic activities – people.

Per 1000 km^2 territory. The EU funds financing to the EU 15 Member States group in the period of 2000 – 2006 exceeded the EU 12 indicators 10 – 20 times. The situation is opposite in the period of 2007 – 2013: the amount of financing to the EU 12 Member States per 1000 km^2 of territory is larger. The regional policy equality principle is as if observed, but another force – time – works, which has given a strong hitch to the development of the EU 15 Member States during the 2000 – 2006 EU funds acquisition period.

Conclusions, proposals, recommendations

1. Theoreticians and practitioners of economics in various countries have researched the impact of the use of the EU funds on the development indicators of the Member States. According to researchers, the EU funds are evaluated as significant tools for facilitating economics with positive effect on the processes.
2. Two similar groups of the EU 27 Member States can be distinguished: the EU 12 or "new" and the EU 15 or "old" Member States, whose differences of development levels are significant. To level out the differences, various EU funds and programmes are available to the EU Member States.
3. In the period of 2000 – 2006, the distribution of financing to the Member States across the funds is as follows: 65% were allocated to agriculture; 20% - to regional cohesion and others. The distribution of the EU funds financing between the Member States groups was planned as follows: 92% of the total funds financing to the EU 15; 8% - to the EU 12. After comparing financing between the Member States, it was observed that the larger Member States of the EU 15 group receive more financing than it is planned for the other EU Member States.
4. In the period of 2007 – 2013, the distribution of financing between the Member States is balanced: in the EU 15, it is 45%; whereas in the EU – 55%,

but regarding the distribution between the Member States, the largest financing is planned for the largest Member States of the EU Member States group.

5. Comparing the financing planned for the period 2000 – 2006 and 2007 – 2013, it has increased 1.7 times in the period of 2007 – 2013. In total, in the period 2000 – 2013 it is planned to allocate EUR 547.3 bill. to the Member States.
6. Evaluating the EU funds financing to the Member States per 1000 GDP (EUR), 1000 inhabitants, and 1000 km^2, the situation reveals the same trend in all the analysed indicators: in the period of 2000 – 2006, the EU 15 Member States received larger investment, whereas in the period of 2007 – 2013, these are the EU 12 Member States, which reveals the correspondence of the distribution of financing to the regional policy principles that financing is allocated to the regions with a lower development level.
7. Economic growth is linked not only with the size of the use of the EU funds financing, but also with the ability of the Member State to implement domestic policy related to a targeted application of the EU funds financing to reach an equivalent quality of economy development of the EU Member States. In the period of 2007 – 2013, the excess of financing to the EU 12 Member States may not provide such a fast economic development rate because the development of the Member States does not take place under identical competitive conditions and is affected by the global financial crisis as well as the regional policy of each Member State. The strategy for the use of financing in connection with attaining long-term goals is important.

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REGIONAL SPECIALIZATION PERFORMANCE TO BE IMPROVED IN LATVIA FOR THE MULTINATIONAL INDUSTRIAL COMPANIES

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Abstract. The research is a part of the investigation of models assessing investments' allocation of the powerful countries neighbouring Latvia. The main attention is concentrated on the industrial development of Latvia under the territorial cohesion in scope of the Baltic Sea Region. The problem of the attractiveness of Latvia industrial location is analysed applying Gini coefficient for regional specialization and geographical concentration of manufacturing among other sectors of economy and within the three Baltic countries. The authors have examined the variables incurred by the new trade theory of the 20th century and the role of multinational enterprises in the industrial business. The main findings of the research are as follows: among the three Baltic countries, Latvia has experienced a considerable decrease of industrial regional specialization from 2000 to 2011; low economy concentration and productivity level, which indicates that it is early to predict a stable and balanced economy development in Latvia. The paper comprises theoretical discussion on the ratios of the analysed Gini coefficient.
Key words: industrial location, location attractiveness, multinational enterprise, regional specialization.
JEL code: F11, F23, L16, R11, R30.

Introduction

Considering the previous research results from the evaluation of the Scandinavian direct investment territorial allocation in the context of Latvia commercial property development and other research involvement concerning the statements of Latvia inefficient and unbalanced economy development (Staube T., Geipele I., 2011), the inflow of the capital to Latvia after its accession to the EU has not been used to cause positive changes in internal economy as Latvia still cannot find the specialization in the EU and in the global markets (Skribans V., 2011). The questions regarding the major principles in allocating the external capital and the reasons of multinational companies' foundation in the Baltic States[2] as the host countries raised the conduct of the given research. In this context, the authors analysed how attractive Latvia is for foreign investors offering the industrial locations to multinational enterprises. ***Hypothesis No.1***: in the last decade, Latvia's regional specialization decreased among the Baltic States. ***Hypothesis No.2***: the geographical concentration of the manufacture remains low in Latvia. The research deals with the problems of regional misbalance in the country, development of multipolarity of the territory, foreign investment generation, and raise of the competitiveness of Latvia recently proposed for adoption by the National Development Plan of Latvia for 2014-2020 (Cross-Sectoral Coordination centre, 2012).

The aim of the current research is to find out the regional specialisation of Latvia among the three Baltic States analysing the commercial branches of economy as the research object in the context of the potential of Latvia market attractiveness to foreign investors. For this purpose, the chosen method includes calculations of the Gini coefficient for regional specialization and the Gini coefficient of geographical concentration derived from the index proposed by Krugman in 1991, and the variables of productivity difference from Ricardo's model and scale economies incurred by new trade theory approach. The theoretical discussion is focused on the analysis of a number of driving economy categories under the regional specialization, geographical concentration setting the research parallel with Krugman and Venables two sector-two regions modelling, and the mean ratios formulation of the Gini coefficient. The following tasks are set for the research: 1) to analyse the manufacturing sector in the context of multinational scale within the last decade in Latvia; 2) to calculate and compare the set of determinants; 3) to draw conclusions in support or rejection of the stated hypotheses. EBSCOhost Academic Search Complete, Elsevier Science publisher, ALEPH, AGRIS databases, and Riga Technical University library resources are the main sources of information. Inaccuracy of statistical data at national and European level, the time scale limitations of the oldest and latest data, its compatibility, and limited availability of detailed statistics on the subcategories according to NACE classification caused the main limitations of the research.

Research results and discussion

1. Theoretical framework and empirical evidence

An ability of a country to attract external capital is a focus of a number of studies. The authors have not found a similar approach in other scientific literature in Latvia and the Baltic, therefore the main bibliography listed comprises the theoretical basis and the previous empirical studies. Arauzo-Carod et al. admits that most of the contributions to literature consist of new evidence on certain determinants (taxes, wages, agglomeration

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[2] hereafter the Baltic countries, namely Estonia, Latvia and Lithuania

economies etc.) and/or new empirical approaches (e.g., Poisson models etc.), often using new data sets (for smaller geographical areas, with longitudinal structure etc.). The researchers have found that agglomeration economies and market size tend to have a significant positive effect, while wages and taxes tend to act in the opposite way (Hayter R., 1997, Arauzo-Carod J. et al., 2010). In 2008, Falcioglu and Akgüngör presented an original research made for the industry of Turkey based on the previous studies including analysis of the industrial location, allocation of the business activities and relocation of the resources as well as the structure of economic activity in terms of specialization of the regions and geographical concentration of the industries (Paluzie E. et al., 2001, Petersson L., 2002, Traistaru I. et al., 2002, Suedekum J., 2004, Falcioglu P., Akgüngör S., 2008). Discussing a focus of multinational enterprises, Cantwell et al. argues that multinational enterprises agency derives from more decentralized forms of experimentation in international corporate networks, which competence-creating nodes of new initiatives can co-evolve with local institutions (Cantwell J. et al., 2010, Staube T., Geipele, I., 2012). A standard theory of the professor John H. Duning on the multinational enterprises knowledge says that success of the foreign direct investment occurs when ownership, location and internationalization (OLI triad) advantages exceed the costs of establishing and running foreign subsidiaries (Dunning J., 1981, Kronborg D., Thomsen S., 2009). The two sector (agriculture and manufacturing)-two region model of Krugman and Venables, in which each sector uses a specific factor of production and only the factor specific to manufacturing (industrial workers), is mobile between regions (Krugman P., Venables A., 1990, Traistaru I. et al., 2002). The place where agglomeration happens could be the result of a historical accident: one small change in the share of manufacturing in a region may then set off a chain reaction and produce cumulative effect (Traistaru I. et al., 2002). Yet, it could hardly be possible in the Baltic due to the small-scale markets of each country, cultural differences, and low pan-Baltic migration dynamics. The developed neo-classical trade theory (Ricardo D., 1817, Ohlin B., 1933, Traistaru I. et al., 2002) explaining the phenomenon of intra-industry trade in Krugman's models assumes that geographical advantage is endogenous and suggests that regional specialization may be the result of the spatial pattern of agglomeration of economic activities (Krugman P., 1991). Krugman's hypothesis suggests that regions become more specialized and industries become more concentrated with economic integration. There was found a tendency of regional specialization in the context of European integration between 1992 and 2001, yet there was no evidence for increased industrial concentration in Turkish manufacturing industry.

2. Data and methods

In this paper, the patterns of regional specialization and concentration of commercial sectors of the economy are analysed by the NACE rev.2 structure coding: agriculture (A code), manufacturing (B - E codes), construction (F code), trade and accommodation (G, I codes), and services and transport (H, J-N codes). Separately, the subcategory of C code (manufacturing) together with the particular agriculture of crop and animal production, hunting and related service activities (A01 code) as alternative producing types of a land-use were explored as a major focus of the research.

Among different measures of specialization and concentration applied in the literature such as the Herfindahl Index, Dissimilarity Index, the Krugman Index, the authors chose Gini coefficient of regional specialization and the Gini coefficient of geographical concentration, which provide a measure of relative specialization and concentration (Traistaru I. et al., 2002, Falcioglu P., Akgüngör S., 2008), and a dissimilarity index derived from the index proposed by Krugman in 1991. The determinants used are employment data (for Gini coefficient and other research variables calculations), Gross Domestic Product (GDP), and the number of firms in industry calculating $TECDIF_i$ and $SCALE_i$ variables followed by the resume of only those variables that are significant in explaining the industry concentration (Falcioglu P., Akgüngör S., 2008). The calculation is based on the following formulae:

— **Gini coefficient for regional specialization** (Damgaard C., Weiner J., 2000, Traistaru I. et al., 2002, Falcioglu P., Akgüngör S., 2008):

$$Gini_j^s = \left(\frac{2}{n^2\,\bar{R}_j}\right)\left[\sum_{i=1}^{n}\lambda_i\left|R_i-\bar{R}_j\right|\right] \quad (1.0),$$

where $R_i = \frac{s_{ij}^s}{s_i}$ (1.1), $\bar{R}_j = \frac{1}{m}\sum_i R_{ij}$ (1.2)

$s_{ij}^s = \frac{E_{ij}}{\sum_i E_{ij}}$ (1.3), $s_i = \frac{\sum_j E_{ij}}{\sum_j\sum_i E_{ij}}$ (1.4), and E_{ij} indicates employment in each industry *i* in a certain region *j*, value λ_i denotes the position of the industry *i* in the ranking of R_i in descending order, *n* indicates the number of regions, *m* – the number of industries. The authors present the modified formula (1.2) for $\bar{R}_j$ and (2.2) for $\bar{C}_i$. The original paper names it $\bar{R}$ and $\bar{C}$ (Falcioglu P., Akgüngör S., 2008). In the first of the mentioned formulae, the calculated meaning shows an average within the industries in a region, however it is different for each region *j* and formula (2.2) measures an average value within all regions per industry. Gini index takes values between zero and one, where values close to zero indicate low specialization, whereas values close to one – a high specialization.

— **Gini coefficient for geographical concentration** (Traistaru I. et al., 2002, Falcioglu P., Akgüngör S., 2008):

$$Gini_i^c = \left(\frac{2}{m^2\,\bar{C}}\right)\left[\sum_{j=1}^{m}\lambda_j\left|C_j-\bar{C}_i\right|\right] \quad (2.0),$$

where $C_j = \frac{s_{ij}^c}{s_i}$ (2.1), $\bar{C}_i = \frac{1}{n}\sum_i C_{ij}$ (2.2), $s_{ij}^c = \frac{E_{ij}}{\sum_j E_{ij}}$ (2.3), $s_j = \frac{\sum_i E_{ij}}{\sum_j \sum_i E_{ij}}$ (2.4), value λ_i denotes the position of the industry i in the ranking of C_j in descending order.

— **Ricardo model** for the relative productivity differences $TECDIF_i$ (Paluzie E. et al., 2001, Falcioglu P., Akgüngör S., 2008):

$$TECDIF_i = \sqrt{\frac{1}{m}\sum_j \left[\frac{\frac{VA_{ij}}{E_{ij}}}{\frac{1}{n}\sum_j \frac{VA_{ij}}{E_{ij}}} - \frac{\sum_i \frac{VA_{ij}}{E_{ij}}}{\frac{1}{n}\sum_j \sum_i \frac{VA_{ij}}{E_{ij}}} \right]^2} \quad (3)$$

The original formula is modified by using the same denoting of the number of regions (*c* in original, *n* in this Paper) and number of industries (*n* in original *m* in this paper) to keep identity with the above formulae's meanings. The equation VA_{ij} measures the value added, and E_{ij} measures employment of an industry *i* in a region *j*.

— **SCALE ratio** (Paluzie E. et al., 2001, Falcioglu P., Akgüngör S., 2008)

$$SCALE_i = \frac{\sum_j E_{ij}}{\sum_j NF_{ij}} \quad (4),$$

where NF_{ij} the number of enterprises of an industry *i* at a region *j.*

New trade theory predicts that scale economies cause firms to concentrate in certain regions measured by the $SCALE_i$ variable. In this paper, the calculations on $TECDIF_i$ and $SCALE_i$ variables are detected only with the focus on the economy sectors: agriculture and manufacturing.

3. Findings

The preliminary research made on the foreign direct investment territorial allocation in the context of commercial property development of Latvia (Staube T., Geipele I., 2011) proved that during the last 20 years Sweden had invested in the fast developing economies (including Finland and the USA) more actively than into the developed partner states – Norway and the United Kingdom. The Swedish investment has an influence on the commercial real estate development of Latvia, although in the Baltic the rate is the lowest. The results provided the modeling findings on the multinational enterprises business. These data are aggregated in Table 1. The economic crisis period did not show significant changes in the above mentioned data in available statistics (for the years 2008 and 2009). Obviously, the number of foreign control enterprises decreased in the entire economy of the Baltic in 2008 and 2009 entirely counting for 34% drop in comparison with the data of 2007. Lithuania experienced the largest loss of 45%, but Latvia the smallest – only 5% from number in 2007. The phenomena is that general comparison of the foreign control enterprises' statistics from the BSR region of 2003 and 2009 in manufacturing sector, reveal that all the countries gained positive change: Estonia had 8% increase (15% down in crisis period), Latvia gained 32% (5% down in 2008-2009), and Lithuania increased the number of the BSR original capital enterprises for 36% (24% drop in the years of crisis).

Under Estlatrus crossborder cooperation programme, Latvia has the common development directions of improvement of the region's competitiveness by utilizing its potential and beneficial location in the cross roads between the EU and the Russian Federation (EU Territorial Cooperation Programs' Office, 2012). However, it is clear that no priorities are set for the industrial business development. In 2008 and 2009, the manufacturing

Table 1

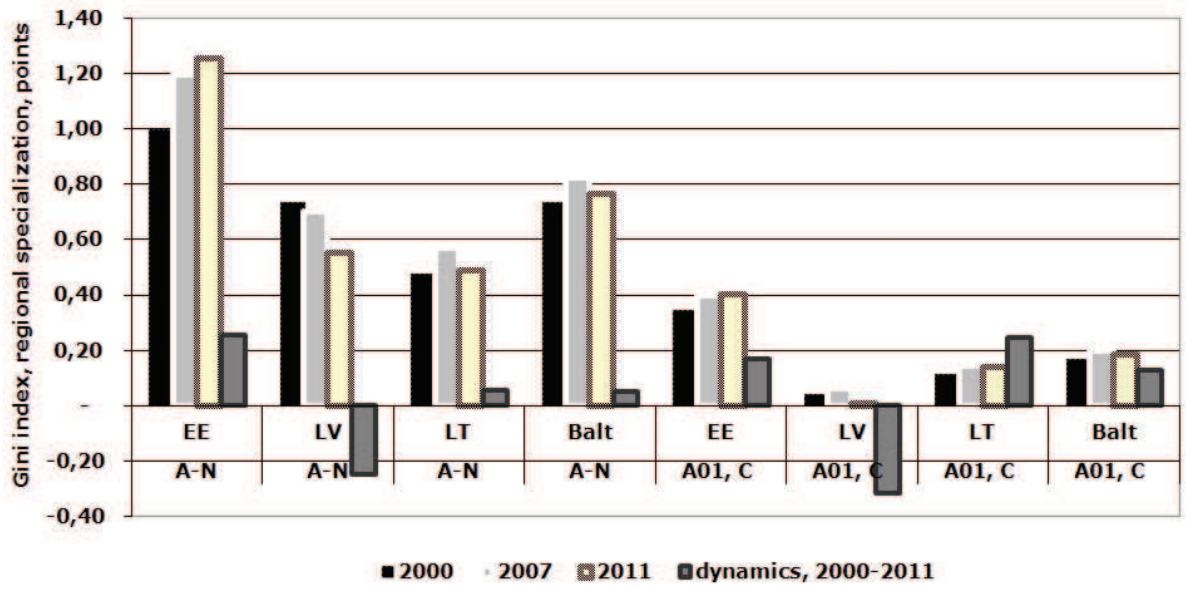
Analysis on the foreign control of enterprises from the BSR[3] in the Baltic in manufacturing in the period from 2003 to 2007 (before economic crisis)

Baltic States	Share of the average annual number of the BSR control enterprises split within the Baltic States[4]	Share of the average annual number of the BSR control enterprises from all foreign control units in a country
Estonia	34%	20%
Latvia	29%	3%
Lithuania	37%	2%

Source: authors' calculations based on the EUROSTAT statistics

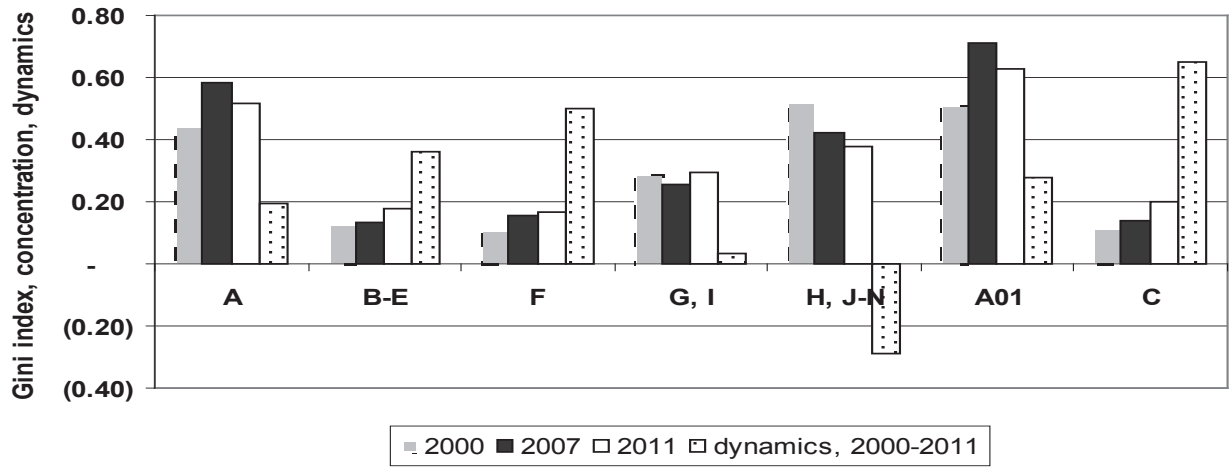
[3] The Baltic Sea Region (hereafter BSR), namely: Denmark, Estonia, Finland, Latvia, Lithuania, Poland, Sweden and northern parts of Germany, Norway, Belarus and north-west regions of the Russian Federation (Staube T., Geipele.I., 2011)

[4] The statistics of Belarus enterprises is not available



Source: authors' construction based on the national statistical data

Fig. 1. **Regional specialization chart of the commercial analysed economy sectors**[5] **in the Baltic according to the NACE rev.2 coding in 2000, 2007, and 2011**



Source: authors' construction based on the national statistical data

Fig. 2. **Geographical concentration of the commercial analysed economy sectors in the Baltic according to the NACE rev.2 coding from 2000 to 2011**

sector enterprises of Latvia were dominantly controlled by the BSR shared 20% for Sweden, 19% - Denmark, and 18% - Germany. Russia and Lithuania, the closest neighbouring investors, counted for 7% of each interest that is five per cent point less than the share of Estonia. Latvia is the leader among the Baltic host countries for Russian enterprises in the multinational business context.

According to the literature summary on the Gini coefficient (see section 2), the Figure 1 demonstrates a big difference of regional specialization of the commercial sectors among the three Baltic States. The average rate for the Baltic is 0.78 in all the period that is close to one, which points at a high specialization rate. The analysis of separate subcategories reveals that Estonia gets the highest rate of Gini index reaching 1.20 point, which accordingly does not mean that the region is concentrated in one sector. Nevertheless, it is a consequence of the problem of statistical secrecy, when a region has less than two companies in a sector data are not available (Falcioglu P., Akgüngör S., 2008). Latvia has the –lowest, i.e. close to zero rate of 0.01 points not even reaching the 2000 level in manufacturing and agriculture in one context. All 12 years Latvia had the highest relative industrial specialization R_i in trade and accommodation (1.40 in 2000, 1.34 in 2011), the lowest rate was fixed in services and transport (0.46 in 2000, 0.61 in 2011), manufacturing kept the fourth (1.00 in 2000, 0.83 in 2011), and agriculture – the third result (0.99 in 2000,

[5] see the list in the section "Data and methods"

0.90 in 2011). Lithuania survived the largest increase (25% up) in the both sectors' specialization rate in the Baltic. Estonia keeps the leading position announcing a moderate regional specialization in manufacturing and agriculture.

Entirely, Latvia holds the second result among the Baltic regional specialization. However, the economic crisis caused dramatic changes for Latvia by 2011. In Figure 1, the data on the dynamics support the stated hypothesis No. 1 proving that Latvia passed through the reasonable decrease in regional specialization within the Baltic. The most negative dynamics of Gini index was fixed in agriculture and manufacturing getting an average slope of 31% down in 2000-2011, which is affected by the slope of almost 88% down during the economic crisis. The regional specialization of Estonia in agriculture and manufacturing sectors survived indicating a positive dynamics even in the period from 2007-2011, and Lithuania had minor difference of less than 10% down.

Figure 2 demonstrates that the highest geographical concentration rate is declared for agriculture and services, including transport in the Baltic. Manufacturing has the lowest rate in 2000-2011, however, currently, due to the market stagnation; the construction sector has the smallest concentration. The results of the calculations showed that R_i and C_j meanings are identical because of the proportion levels off the basic data. $TECDIF_i$ calculations got close to zero value. Therefore, Latvia experience adds to the Ricardian theory's predictions – the greater the higher degree of regional specialization, the higher the level of geographical concentration of industry. The $SCALE_i$ ratio showed 56% slope down in agriculture to seven persons per unit and double decrease in manufacturing from 2000 to 2011 to the enterprise size of 18 persons. Such considerable changes scaling agriculture and manufacturing economies might be the consideration to efficiency revaluation as a consequence of industrial specialization decrease within the low scale Baltic market.

Conclusions, proposals, recommendations

1. The findings of the paper fully confirm the hypothesis No.1: in scope of the Baltic, Latvia experienced the tendency of regional specialization decrease within the last decade that might result in weakening of investment attractiveness for Latvia among the other Baltic countries. Krugman's hypothesis (see section No.1) is true for the A01 and C NACE categories. Regarding all the commercial branches as whole, Latvia has lost its regional specialization positions since the period of Latvia's integration into the EU.
2. The analysis of the multinational companies' geography and number in the Baltic countries gave phenomenal data showing that during the years of economic crisis the major number of the companies with the BSR capital were in the manufacturing sector in the Baltic. The authors' interpretation of the results provide that these might be the companies from the historical partner countries that mainly correspond to the geographical concentration, and Ricardo model predictions on the market access and locations determines the industrial concentration. Small scale and low regional specialization rate of the Baltic market create conditions for low industry development paces. The results predict that currently Latvia has greatest influence from the longer distance foreign investors, and it might increase its attractiveness for the border neighbour countries. This empirical study requires further analysis on foreign direct investments and dynamics of the represented industries' scales.
3. Since the highest regional specialization rate was observed in Estonia, this country seems to be more attractive for cooperation and business activities. Whereas, Latvia and Lithuania compete to increase the potential of the investments' attractiveness by developing authentic economy branches. The growth of the number of enterprises and real estate market at the economy development stage in the last decade should not be ignored, so the questions of a pricing policy for merger and acquisition and national politics supporting the external capital inflows are open for further research investigation.
4. According to the Krugman's theory (Krugman P., Venables A., 1990) and the obtained statistics on Gini coefficients, the integration into the EU promoted the reduction of the trade barriers and increased the attractiveness for the Scandinavian investments. Therefore, Estonia has strengthened its position as being "the centre" with a good market access for major economic sectors, thus, impairing the positions of Latvia and Lithuania leaving them as remote regions in "the periphery". At this stage, the costs of production factors would motivate firms to move back to the peripheral regions (original locations).
5. The results support the hypothesis No.2. The research results suggest the need to consider the advantages of the local market of Latvia and the foundation of the industrial specialization niche. Lithuania might expect only structural changes in agriculture.
6. Based on the theoretical discussion, the paper demonstrates amendments to the formulation of the Gini coefficient's $\bar{R}$ and $\bar{C}$ ratios and finds that R_i and C_j meanings are identical, because in calculating a value the proportion levels off the basic data.
7. In the current context of the industrialization aspirations of Latvia, characterized by high external debt, weak current regional specialization, and low economy concentration and productivity level, the authors conclude that in the medium-term perspective it is too early to judge about the stable and balanced economical development opportunities.

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NEW EUROPEAN UNION MEMBER STATES TOWARDS SUSTAINABLE WASTE MANAGEMENT, INVOLVEMENT OF INDIVIDUALS INTO THE SYSTEM

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Abstract. This paper provides a study focused on the new Member States and their experience in the development of sustainable waste management system and involvement of individuals into it. Almost all countries have achieved the first stage – construction of new infrastructure, and closure and recultivation of old sub-standard landfills. The article provides comparison of different methods used to involve inhabitants into the waste management system; the paper concludes with one important aspect – deposit system which has been discussed a lot lately. The general aim of the paper is to compare the European Union new Member States in terms of their achievements in the field of waste management and, especially, in the implementation of deposit system in the Baltic States. Tasks, undertaken within the research are, as follows: comparison of the EU New Member State achievements in waste management; and a comparative analysis of economic instruments applied in the field and of deposit system, implemented in the Baltic States. The applied methodology includes a quantitative and qualitative comparative analysis. The main conclusions of the paper state that the society education remains one of the most important aspects to achieve goals set for waste management.
Key words: sustainable waste management, Baltic States, European Union, economic instruments.
JEL code: O52, R58, R38

Introduction

The new Member States, including Estonia, Latvia and Lithuania have begun their way towards sustainable waste management in the mid 1990s. Accession of the new Member States to the European Union required harmonisation of the existing legislation system with the European legislation and implementation of Sustainable waste management system (Cudecka N., 2007).

According to Cudecka-Purina (2011), the countries had to develop an integrated approach to municipal waste management in order to implement the European Waste Management Directive. Latvian sustainable waste management system underwent three main stages:

1) development of new infrastructure – construction of sanitary waste landfills and dumpsite recultivation – up to now is totally fulfilled in the Baltic States and in part of the Member States;
2) involvement of 100% of urban and at least 75% of rural inhabitants – practically fulfilled in the Baltic States and in part of the Member States;
3) implementation and development of sorted waste collection from 5% in 1995 to 25% in 2025.

The second and third stages were in the awareness of the regions and local governments, and their implementation was financed by the state or region. The first stage involved recultivation of all existing dumpsites and construction of regional landfills, which required co-financing from the European Union funds (Cohesion and ISPA funds). The following table shows the situation in the new Member States, in terms of closure and recultivation of sub-standard landfills and construction of new landfills.

Table 1 shows that extensive work has been done in the field of waste management, mainly with the use of the European Cohesion Fund and ISPA co-financing. It also shows the correlation between the population density and the number of sub-standard landfills. For example, in Latvia there were 4480 inhabitants/sub-standard landfill in 1995, while the number exceeds 200,000 inhabitants per landfill in 2010. In Poland, there were 38,702 inhabitants per sub-standard landfill and now the number is 193,129 inhabitants per landfill. This leads to a conclusion that the new system is focused on the use of developed infrastructure in more economically effective and environmentally efficient way.

1. Economic instruments in the new European Union Member States

The countries have introduced various measures to increase the cost of landfilling to comply with the provisions of the Landfill Directive. The increasing gate fees mainly result from rising technical standards for landfills and implementation of the principle that gate fees should cover all costs involved in the setting up, operating, and closing landfills. This study finds that to be effective, landfill tax rates should be relatively high, although in Estonia, rapid increases to a relatively low landfill tax have achieved a similar effect (EEA, 2009).

The table below provides information on the taxes and gate fees in the European Union. The figure outlines that the costs for landfilling in the new Member States

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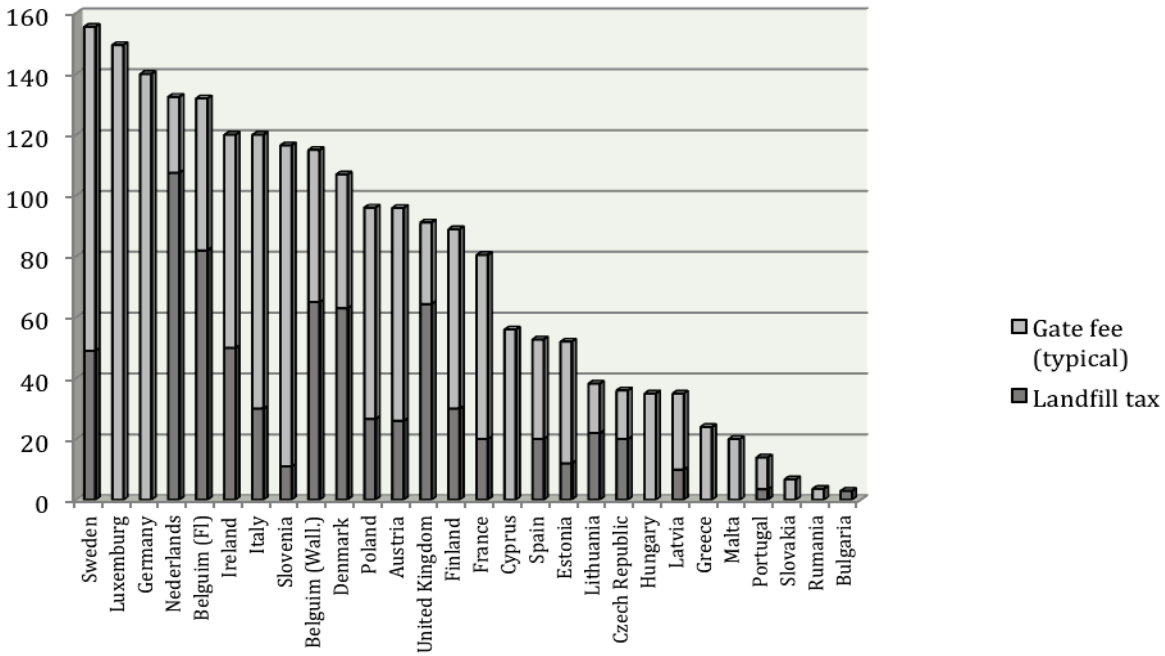
Table 1

Sub-standard landfills in the new Member States

Country	Area, km^2	Inhabitants (2010)	Number of sub-standard landfills	Number of landfills
Bulgaria	110,910	7,621,337	124 controlled, 9 meet the EU standards, 720 reported by the Ministry of Environment, 2500 in total	56
Cyprus	9,250	800,000	120	4
Czech Republic	78,866	10,674,947	1270	237
Estonia	45,226	1,415,681	351	10
Hungary	93,000	10,075,034	2670	53
Latvia	64,589	2,366,515	565	10
Lithuania	65,200	3,601,138	800 (incl. contaminated sites and liquid waste reservoirs)	11
Malta	316	400,000	3	1
Poland	312,685	38,625,478	998	200
Romania	238,391	22,303,552	7686	65
Slovakia	48,845	5,422,366	8000	71
Slovenia	20,273	2,048,847	60	15

Source: authors' analysis based on 9,10,11,15,18,28,30,31



Source: authors' calculations based on the CEWEP (2011) and EC (2012) data

Fig. 1 **Total costs (EUR) for landfilling in the EU-27**

(excluding Slovenia and Poland) range from 2% to 40% of the highest costs – in Sweden (EUR 155.5).

According to the report of the European Commission (DG ENV) (2012)), the level of taxation ranges very widely, while some countries levy no tax. Among the countries with taxes, the taxes vary from EUR 3 per tonne in Bulgaria to up to EUR 107.49 per tonne in the Netherlands. The total costs of disposal to landfill, in the EU appear to range between EUR 0.33 in Slovakia and EUR 155.50 in Sweden.

Table 2

Overview of landfill taxes and fees in the new Member States

Country (year, tax introduced)	Landfill tax rate (EUR)	Gate fee range (EUR)	Total typical charge for landfilling (EUR)
Bulgaria (2004)	3	No data found, but very low	3
Cyprus	-	56	56
Czech Republic (1992)	20	12- 20	36
Estonia (1990)	12	50	62
Hungary	-	35	35
Latvia (1991)	10	18 – 28	35
Lithuania (2012)	22	15 - 17.50	38.25
Malta	-	20	20
Poland (2001)	27	58 - 81	96.10
Rumania	-	2.80 - 4.60	3.70
Slovakia	-	0.33 - 13.28	6.80
Slovenia (2001)	11	36 - 157	116.50

Source: authors' analysis based on 12

Table 2, along with Figure 1, shows that all Member States excluding Poland and Slovenia have considerably small charge for waste landfilling. Still, the rates have increased up to 500% (Estonian case) compared with the gate fees that were in force 10 years ago. The gate fees and landfill taxes do not stimulate much the waste management companies to collect sorted waste, as it requires infrastructure (waste containers), land (where the sorted waste areas would be located), special transport, and storage areas. Still, the fee and tax cannot be increased to the level of other Member States instantaneously, as this would only lead to illegal dumping and to the fact that no waste is transported to landfills. This means that the Member States have to implement the progressive rates and to use them alongside with popularisation and implementation on the individual involvement level of the three R strategies – *Reduce, Reuse,* and *Recycle*.

2. Economic instruments for involvement of individuals into the Waste Management system in the Baltic States

In this part, special attention will be drawn on three countries – Estonia, Latvia, and Lithuania, as these countries are the only countries within the European Union, which previously were part of different union – the Soviet Union and this means that the starting situation was identical in all three states.

The following main methods for involvement of population into the waste management system exist in the Baltic States:

— institutional;
— social;
— financial.

Institutional methods are the same along all countries. They start with the European legislation – directives, frameworks and regulations, followed by the national level – legislation of particular country, the regional – regulations, waste management plans etc. and finish with the municipalities with their own regulations.

Social methods – were totally new for the Baltic States, since no such term as non-governmental organisations existed in the Soviet Union, especially, in the field of waste management. Now, each country has a large number of such organisations, from "green clubs" up to professional associations. The most important of which are:

— waste management associations (Latvia – LASA (Waste Management Association of Latvia), LASUA (Latvian Waste Management Company Association); Lithuania – RATCA (Association of Regional Waste Management Centres of Lithuania), LKATA (Lithuanian Communal Service and Waste Management Association); and Estonia – EJKL (Estonian Waste Management Association));
— Green dot (in each country its own).

Main activities of the non-governmental organisations include:

— preparation and discussion of planning documentation;
— organisation and implementation of practical activities in waste sorting;
— cooperation with governmental institutions;
— increase of environmental consciousness, development of consumption habits.

Results and discussion

A very precise remark was made by Cossu (2009) that waste management decisions may be strongly influenced by several other factors including the famous syndromes:

— NIMBY (Not In My Back Yard) - the best known syndrome representing a widely spread public attitude towards the installation of waste management facilities close to any particular residential area;

Table 3

Waste collection fees in the Baltic States

Country	Waste fee calculation basis	Collection fee	Deposit system	Rates
Estonia	Block of flats	0.038 EUR/m^2	Yes, since 2005	EUR 0.06 – glass, PET > 0.5l EUR 0.03 – metal cans, PET ≤ 0.5 l
	Household	60 - 70 EUR/t (4 - 6 EUR/month)		
Latvia	Block of flats	0.88 – 1.74 EUR / person	Yes, since 2003	EUR 0.08 – colourless glass 0.33 l EUR 0.07 – brown glass 0.33 l and 0.5 l EUR 2.45 green plastic bottle boxes (20 x 0.5 l) EUR 2.85 blue plastic bottle boxes (24 x 0.33 l)
	Household	3.13 – 14.80 EUR /m^3		
	Refuse bag (in one region only)	EUR 3.30		
Lithuania		0.05 – 1.01 m^2	Yes, since 2002	EUR 0.09 – glass < 0.5 l EUR 0.10 – glass > 0.5 l Buy back in retail chains for 0.33 l: EUR 0.04- EUR 0.05 Buy back in retail chains for 0.33 l: EUR 0.04- EUR 0.07

Source: authors' data summarisation

- NIMO (Not In My Office time) - it is still common practice among politicians and administrators to avoid or postpone decisions that may adversely impair their careers;
- BANANA (Building Absolutely Nothing Anywhere Near Anybody) - this syndrome represents an extremely radical conclusion to the approaches described previously.

These aspects shall be taken into consideration, when speaking about social factors. These are the issues that have to be explained and the society has to be educated about.

This leads to a conclusion that the best and most efficient way to involve inhabitants into the waste management system is with the help of economic methods. The main economic instruments in waste management include waste collection fee from inhabitants and the deposit system.

It should be mentioned that different methods exist regarding the waste collection fee. The latest method used in the European Union is a PAYT (Pay-As-You-Throw) scheme. Still it differs among countries:

- fixed annual fees per household (from EUR 40 (Spain) up to EUR 2,415 (Germany));
- fees for the purchase of the mandatory refuse bags for residual waste (from EUR 0.65 for 17 l bag in Spain up to EUR 5.50 for 70 l bag in Germany, i.e. from EUR 0.03/kg in Spain and EUR 0.07/kg in Germany);
- fees for emptying a bin – 120 l or 140 l only, for comparison purposes (from EUR 0.50 in France to EUR 4.20 in Finland);
- fees per kg (EUR 0.17 in Slovakia to EUR 0.36 in Sweden) (16).

In addition to the above-mentioned options, the following waste collection fees exist:

- de facto collection rate EUR/m^3;
- accumulation ratio = R * $N_{i/f}$ – where $N_{i/f}$ stands for the number of inhabitants per flat;
- EUR/m^2 – mainly used for catering, schools, business centres etc.;
- door handle – unified rate per flat;
- fixed duty, added to real estate tax;
- combination of the above-mentioned.

The analysis of the two lists leads to the conclusion that no unified system has been developed and a variety of methods for the calculation of waste collection fee exist across the European Union. Though, Table 3 shows that these differences exist not only between the countries but also even within one country. The following table provides a comparison of economic instruments used in the Baltic States.

The table presents that even the three countries, which have a common background and starting situation, now have totally different approaches to the collection fees applied to the inhabitants and the existing deposit system.

If turning to the deposit system, Estonia has most significant achievements, since it has introduced the system not only for glass beer bottles (as Latvia and Lithuania) but it also has deposit points and buy back system. In Lithuania, four out of five biggest retail chains are involved into the deposit system. In Latvia, still no buy back system from the retail chains or deposit points are in use. The only possibility for inhabitants to participate in the deposit system is to use private small buy back points, which offer a rate of EUR 0.028 - EUR 0.056 per glass bottle.

Here, it is vital to emphasise that the European Union Member States have dedicated a lot of time and effort in order not only to implement but to develop and adjust deposit system. The deposit system has been introduced

in Germany – from the 1950s, Austria – the 1990s, Denmark – in 1967, the Netherlands – the 1970s, and Sweden – the 1980s. This means that the system has been in operation for decades, and the consumers have already grown up with this scheme.

The reuse deposit scheme is compulsory for some types of drinks in the Netherlands, Denmark and Sweden (PET) – in these cases, only bottles that are part of a deposit scheme can be sold – and voluntary in Germany, Austria, and Sweden (glass).

Only Austria and Germany have sought to promote the reuse by means other than a deposit scheme:

— the German Packaging Directive sets a minimum packaging quota for reusable drink packaging and one-way packaging containers deemed "Ecologically advantageous". This definition does not exist in the EU law and it has been contested by a number of Member States, including France;
— the voluntary agreement for the Austrian drinks industry for the period of 2005-2007 set ambitious targets and encouraged consumer information campaigns on reusable containers, in particular, at large public events.

Apart from Austria, countries with a reuse deposit scheme have also set up a compulsory recycling deposit scheme that coexists with older reuse deposit schemes. The German, Danish, and Dutch systems were set up recently, between 2002 and 2006, while the Swedish system is older - it dates back to 1982 for cans and 1991 for PET bottles (19).

All this proves that activities like the implementation of deposit system and sorted waste collection are very time consuming and even more – education-consuming, as a new generation has to grow in order to get the system developed and well-working. This, of course, is no excuse to avoid target fulfilment of these activities but stands for the fact that they are to be taken seriously and education of the society is one of success prerogatives.

Conclusions, proposals and recommendations

The following conclusions have been drawn after the research performed by the authors.

1. During the data collection and analysis, it has been revealed that the term "landfill" is often misused within the European Union, as landfills in the country reports often really mean dumps or sub-standard landfills. Hence, the term creates bias and sometimes misleading information.
2. A significant achievement has been made by all new Member States, as totally new infrastructure has been created and the possible pollution areas have been recultivated. This is the first step in each country towards a successful sustainable waste management.
3. Landfill tax is still not established in Cyprus, Hungary, Malta, Rumania, and Slovakia. It has proven itself to be an effective instrument, which has to be implemented. The authors assume that the landfill tax shall have a constant increase tendency, which would stimulate sorted waste collection and the inhabitants would understand it and its aims, as the revenues are directed for investments into environmental activities and not into the profit increase for waste management companies.
4. The performed analysis of involvement methods for individuals into the waste management system revealed that the involvement can be achieved, when all three methods are in use, with special attention paid to a social method. These methods explain the necessity of sorted waste collection, in order to decrease the economic load on the inhabitants.
5. Analysis and comparison of the European countries has revealed that a long time period is needed to implement and design an efficient deposit system. Successful establishment of the deposit system has to fulfil needs and bring benefits to the industry and individuals; hence, requiring an extensive educational work and profound economic basis.

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MANAGEMENT AND USE OF NATURAL RESOURCES IN THE DEVELOPMENT OF RURAL ECONOMIC FUNCTIONS IN LUBLIN VOIVODESHIP

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Abstract. The aim of this paper is to present the state of management and use of natural resources of rural areas in the Lublin Voivodeship for selected economic functions: agriculture, forestry, and tourism. The purpose has been implemented based on statistical data and other source materials on the examined region. The study demonstrated the unfavourable situation of the examined region in terms of the three functions in relation to the overall situation in the country. The author has emphasized interconnection between the development of the analysed functions and has shown that, in the development policy of the region, multifunctional and sustainable development should be created as the basis ensuring innovative and effective use of natural resources.
Key words: management and use of natural resources
JEL code: Q56

Introduction

Environmental elements used by humans are called natural resources. These include natural resources, the forces of nature and environmental values, which determine the quality of human life and which directly, meet the biological and mental needs and are the base for material production (Dobrzanska B., Dobrzanski G., Kielczewski D., 2010). In particular, natural resources determine the scale and effects of the economic activity associated with the development of rural bioproductive functions, which include agriculture, forestry, and fishery. They are also important from the point of view of technoproductive and service functions, including in particular tourism and leisure (Stola W., 1987).

In successful development processes, both the existence of natural resources and their quality and quantity are important as well as their economic use. The degree and extent of the use of resources is an important part of natural competitiveness of the region and depends on the ability to acquire and/or process environmental resources by the entities in the region (Kruk H., 2007).

The foundation of modern rural development is created by the concept of sustainable development; its essential element is comprehensive recognition of rural areas' functions, integrating a variety of economic and non-economic functions, including social and environmental ones. In the area of economic functions, the importance of creating non-agricultural functions is becoming more important with the function of tourism or other functions based on the use of natural resources occupying a special position. Innovative, efficient use of natural resources of a region in the development processes that do not lead to lowering the qualitative and quantitative parameters is one of the most important areas for the concept of sustainable development. It can also be one of the main directions of the development of peripheral regions of preserved natural beauty and economy dominated by agricultural sector.

Innovative solutions for the management of natural resources should be developed within regional coordination in consultation with local communities. Achieving sustainable development is possible when environmental innovation (innovative milieu) sees natural resources in an integrated manner, taking into account the interdependence between the natural environment and the local community (Peyrache-Gadeau V., 2007). Multifunctional character of rural areas at the same time forms the basis for the implementation of various policies in support of economic, social and environmental functions of these areas (Kopeva D., 2012).

The aim of this paper is to present the state of management and use of natural resources in rural areas of the Lublin Voivodeship in relation to the functions of agriculture, forestry, and tourism. The study was focused on verifying the hypothesis of disadvantaged situation of the region in terms of all three functions. To verify the hypothesis, the author used methods of descriptive statistics. To conduct analysis, statistical data and other materials published by the Central and Regional Statistical Office were used together with different sources' documents about the region. The scope of the analysis covers the period 2007-2011. Data on rural areas of the region are presented in relation to the background data of the whole country. The proposed construction of some management indicators and the use of natural resources of the region have been taken from the works of J. Suchta and W. Zebrowski (2003). The paper was prepared within the research project No. 2011/01/D/HS4/03927 entitled "Environmental conditions and factors of development of the economic functions of valuable natural areas of Lublin Voivodeship" funded by the National Science Centre.

General characteristics of the natural resources in Lublin region

The Lublin Voivodeship covers an area of 25.1 thousand km², which represents 8% of the

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country. The region is located in the central-eastern part of Poland, bordering the east of Ukraine and Belarus. The voivodeship is one of the least populated and urbanized regions in Poland. In 2011, the population was 2171.9 thousand people (5.6% of the Polish population), of which the majority (53.5%) lived in rural areas. Lublin is a region with an agro-industrial economy, the rural areas of which require structural transformation towards multifunctional and sustainable development.

The region is attractive in terms of natural and landscape values. Lublin Upland characterized by varied and attractive land relief occupies central and south-eastern part of the region. From the east, adjacent to Lublin Upland, there is Wolyn Upland, and from the southeast – the Roztocze Hills. To the north from the stretch of the uplands, there are mostly lowlands: Mazovia, Lublin Polesie, and South Podlasie. Lublin Polesie is the most attractive for tourists, with Leczynsko-Wlodawskie Lake District and its 67 lakes larger than 1 ha and a forest complex. The most attractive tourism areas of the region are also the forests of the Roztocze Hills and the Naleczow Plateau and the Lesser Poland Vistula Valley (loess canyons), where there are created two landscape parks and several nature reserves (Studium).

The Lublin voivodeship is characterized by a relatively low level of afforestation, and the afforestation rate is spatially diverse reflecting the diversity of agricultural soil suitability. The largest dense forests are on the Sandomierz Basin, the Roztocze Hills, and the Polesie, whereas the Lublin Upland is the least forested (Studium). Good soil favours agricultural production, which is significant in the country. Main natural resources of Lublin are formed by non-renewable resources - minerals, and in terms of renewable ones - water resources, forestry and soils of high quality. In the Lublin region, such natural resources as coal, natural gas, and crude oil are exploited (Strategia, 2005).

The state of management and use of natural resources in relation to the function of forestry

Forestry includes forestry activities with the arrangement, protection and forest management, maintenance and enhancement of forest resources and crops, farming animals, logging, resin extraction, harvesting trees, acquiring stumpwood, bark, needles, animals and undergrowth resources, the sale of these products, and implementation of the non-productive functions of forests – social and protective ones. These functions should be implemented in accordance with the concept of the sustainable forest management (Ustawa o lasach, 1991).

In 2011, the forest land in the Lublin region amounted to 587.9 thousand ha, of which 98.6% were forests (the land for forest production or being nature reserves included in the national parks and registered as monuments), and the remaining land was associated with silviculture. In 2011, forests covered 579.4 thousand ha in the region, occupying 23.1% of the total area. The forest area in the region per one inhabitant was 0.27 ha, in the country - 0.24 ha. More than half (58.7%) of the forests are public (in Poland - 79.5%) (Lesnictwo, 2012).

Largest afforestation (almost 30%) is in the northern and southern areas of the region with poor sandy soils and wetlands. The largest share are forests (65% of the total afforestation) and hornbeam (about 30%) and the lowest - alder (about 5%) (Uziak S., Turski R., 2008). Dominant tree species include pine (54.9%), oak (14.1%), birch (8.3%), and alder (7.6%). In comparison with the structure of species, the Lublin region forests exhibit lower share of pine (5 percentage points) and a higher proportion of oak (7 percentage points), birch (1 percentage point) and alder (2.2 percentage points) (Lesnictwo 2012).

The most forested areas of the Lublin Voivodeship are Janow District (afforestation rate is 40.4%), Wlodawa District (39.4%) and Bilgoraj District (39.1%). The municipalities with afforestation rate of 15-50% account to 61.7% of all the rural and semi-urban areas, less than 15% - 33.7% and greater than 50% - 4.7% (BDL).

The age structure of tree stands of class III in the Lublin Voivodeship is similar to the structure of tree stands in the country. The share of class I tree stands is 10.1%, II - 15.6%, while class III - 27.8%. In further classes of age differences are: the share of Class IV greater by 7.6 percentage points in the case of the Lublin region (representing 26.1%) and the share of class V lower by 5.9 percentage points and greater (15.3%) compared with the structure of the country (table 1) (BDL).

In the period 2001-2020, the agricultural land provided for afforestation is 64,038 hectares in the Lublin Voivodeship, including public sector - 7,313 ha (Krajowy Program…, 2003). Opportunities to increase afforestation of the region should be associated with the implementation of the Rural Development Operational Programme co-financed by the European Union. In the Lublin Voivodeship, in the period 2007-2011, 3100.4 hectares were earmarked for afforestation, of which more than half (55.3%) was realized within the RDOP (Lesnictwo, 2012).

Abundance of tree stands in the region is 253 m^2 and is less than the average abundance of tree stands in the country. Most tree resources of the region (61.4%) are in the third and fourth age class (in Poland - 52.4%). In the region, compared to Poland, the share of standing wood in the fifth and higher age class is lower (respectively - 24.2% and 32.8%). In the period 2007-2011, the volume of harvested wood (m^2/100ha of forest) in the region showed a clear upward trend, whereas, in 2011, it was significantly lower than the value for the country and was 285.1 to 381.4 (the country) (BDL).

In 2011, the forests of the Lublin region provided 6.6% of non-coniferous timber and 4.1% of coniferous timber in the country - a total of 1 652.1 thousand m^3. Coniferous timber represented 65.6% of the total timber in the region. Half (50.5%) of the acquired coniferous and non-coniferous timber was large size wood of general and special purposes. The shares of medium size wood for industrial processing (37.4%) and firewood (12.2%) were lower (Lesnictwo, 2012).

The Lublin region is rich in forest fruit, which is reflected in the volume of the sold fruit. In 2011, the size of the procurement of forest fruit was almost five times higher than the national average and amounted to 5.4 kg/ha of forest. In 2011, Lublin Voivodeship provided 31% of forest fruit in the country. The most important

Table 1

The state of management and use of natural resources in the Lublin Voivodeship in relation to the function of forestry with reference to national data in 2007-2011

Selected indicators	Value of the indicator in 2007-2011									
	Lublin Voivodeship					Poland				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Management										
1. Afforestation (%)	22.60	22.60	22.80	23.00	23.10	28.90	29.00	29.10	29.20	29.20
2. Renewal and afforestation in relation to the total forest area (%)	0.4	0.4	0.4	0.4	0.4	0.7	0.6	0.5	0.6	0.6
3. Abundance of tree stands gross timber overbark/1 ha of forest area (m^2)*	253.0					269.0				
4. Standing wood by age of tree stands on forested area (%)*	I (1–20 years old) + KO II (21–40 years old) III (41–60 years old) IV (61–80 years old) V and more (81 years old and more)				0.6 9.6 29.1 32.3 24.2					0.9 10.0 28.7 23.7 32.8
Use										
5. Acquisition of wood (timber) per 100 ha of forest area (m^2)	248.3	242.7	238.6	250.6	285.1	377.4	357.5	359.8	368.0	381.4
6. The share of legally protected areas in the total area (%)	22.7	22.7	22.7	22.7	22.7	32.3	32.3	32.3	32.4	32.5
7. Protection forests % of forest area (%)	0.41	0.41	0.41	0.40	0.40	5.71	5.76	5.44	5.13	4.97
8. Forest fruit procurement (kg/ha of forests)	5.3	3.9	4.4	3.2	5.4	1.8	1.0	1.3	0.9	1.1

* Figures are based on the large-scale forest inventory of the country carried out in 2007-2011 by the Bureau of Forest Management and Geodesy

Source: author's study based on the data from the Central Statistical Office Local Data Bank in Warsaw

species were European elder and bilberry. In 2011, the procurement of game in the Lublin Voivodeship (335 t) accounted for 3.6% of the national procurement. The most important species were deer and wild boar. The volume of the procurement of mushrooms in comparison with other regions of the country is not significant (BDL, Lesnictwo, 2012).

An element influencing the use of the natural values of forests in the region is the share of legally protected areas (Suchta, Zebrowski, 2003), which in the Lublin Voivodeship constitutes 22.7% of its surface. In 2011, there were 2 625 m^2 of protected area per capita, in Poland – 2 633. Among the protected objects, there are two national parks, 16 landscape parks, and 17 protected landscape areas. In 2011, the area of protected forests, which are protected because of the functions they fulfil and remain under the management of the National Forests, was 126 322 ha. The share of the protected forests in the region was 0.4% of the forests and was much lower than in the country (4.97) (BDL) (Table 1).

Observing the increasing value of afforestation of the region, one has to note that a reasonable increase in afforestation on the lands excluded from agricultural use and the development of multifunctional forest management, which is characterized by assigning more and more importance, in addition to production functions, to protection, ecological and social functions of forests can halt the decline in economic activity of the region. Making use of recreational opportunities for the use of forest and its tourism development is not without significance (Plotkowski L., 2004).

The state of management and use of natural resources in relation to the function of agriculture

The function of agriculture in Lublin Voivodeship concerns agricultural land, the surface of which in 2011 amounted to 1.77 million hectares constituting 9.4% of agricultural land of the country. In 2011, the share of agricultural land in the total area of the region was 70.6% and was greater by 10.3 percentage points in comparison to the country. The share of arable land in the area of agricultural land in the region and the country was at a similar level – respectively 75% and 73.8%. Almost the entire area of agricultural land (96.7%) was privately owned, highly fragmented in the Lublin Voivodeship (BDL).

Table 2

The state of management and use of natural resources in the Lublin Voivodeship in relation to the function of agriculture with reference to national data in 2007-2011

Selected indicators	Value of the indicator in 2007-2011									
	Lublin Voivodeship					Poland				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Management										
1. Agricultural area (%)*	71.3	71.1	71.1	70.8	70.6	61.0	60.8	60.7	60.5	60.3
2. Arable land % in agricultural area*	75.1	75.1	75.1	75.1	75.0	73.6	73.7	73.8	73.8	73.8
3. Fallow land in arable land (%)	2.7	2.6	3.3	3.2	3.4	3.8	4.1	4.4	4.1	4.2
4. Meadows and pastures in agricultural area (%)	16.1	15.8	16.2	16.3	16.1	20.2	19.7	19.7	21.2	21.3
5. Agricultural Property Stock of the State Treasury impermanently disposed (%)	67.9	67.1	66.7	67.1	66.6	74.3	75.4	75.5	75.6	75.0
Use										
6. Cereal yields (dt/ha)	28.5	33.3	30.3	31.5	31.1	32.5	32.2	34.8	35.6	34.3
7. Permanent grassland yields (dt/ha)	47.0	48.0	37.3	45.7	42.8	51.7	48.3	49.2	49.0	50.5
8. Potato yields (dt/ha)	200.0	202.0	189.0	266.0	234.0	207.0	191.0	191.0	211.0	230.0
9. Sugar beet yields (dt/ha)	489.0	455.0	559.0	479.0	545.0	513.0	465.0	543.0	483.0	574.0
10. Oilseed and turnip rape yields (dt/ha)	20.1	20.3	21.0	22.1	24.1	26.7	27.3	30.8	23.6	22.4

*geodetic area of the country

Source: author's study based on the data from the Central Statistical Office Local Data Bank in Warsaw and Agricultural Property Agency

Natural potential of the Lublin region is much more favourable in comparison to the average values in Poland. The indicator of the quality of agricultural production in the Lublin Voivodeship is 74.1 points on IUNG [Institute of Soil Science and Plant Cultivation] scale in Pulawy (national 66.6 points) and is one of the highest in Poland (Krasowicz S.). The best soils as far as suitability for agriculture is concerned are located in the south-eastern part of the region and in the vicinity of Lublin, Konopnica, and Jastkow, while the worst – in the northern part of the voivodeship. (Rocznik Statystyczny Rolnictwa, 2011).

Bonitation of arable land and permanent grassland in the Lublin Voivodeship is much better than in the country. In relation to arable land in the region, the largest area of land is covered by very good or good soils (45.5% versus 29.1% in the country), while poor and very poor soils have the lowest percentage (19.7% vs. 31.8% in the country) (Krasowicz S.).

In 2011, the area of fallow land - arable land not used for production purposes but managed according to good agricultural and environmental practice - amounted to 36 872 ha constituting 7.9% of the fallow land in the country. In the case of Lublin Voivodeship, fallow land accounted for 3.4% of arable land. This share was smaller than the one of the country by 0.8 percentage point. The rising trend in changes in the rate applies to both the region and the country (BDL).

In the Lublin Voivodeship, in late 2011, the land remaining in the Agricultural Property Stock of the State Treasury included 55 933 ha, accounting for 2.2% of the region. Nationally, in the Stock there remained 6.2% of the land. The land managed on impermanent basis - remaining in the lease - accounted for 66.7%. This share was lower by 8.4 percentage points than the rate for the country. The above data indicate that the process of the State Treasury land management in the region is more advanced than in the country (Raport z dzialanosci…, 2012) (Table 2).

Despite favourable natural conditions for the development of the function of agriculture and favourable indicators of agricultural land management in the region, the voivodeship is characterized by a low level of the use of resources. Cereal yield obtainable in the region was defined at the level of 46.8 dt / ha, while in Poland - 43.3 dt / ha (Krasowicz). In the period 2007-2011, actual cereal yields obtained in the Lublin region were lower in absolute terms than in the case of cereal yields in the country. The rate of yield acquisition in comparison to the potentially possible one was also lower. In 2011, cereal yields in the Lublin region accounted for 66.5% of the obtainable yield, while in the country - 79.2% (BDL).

Lower yields obtained in the Lublin Voivodeship, compared to the average values for the country also apply to permanent grassland and sugar beet. Yields

Table 3

The state of management and use of natural resources in the Lublin Voivodeship in relation to the function of tourism with reference to national data in 2007-2011

Selected indicators	Value of the indicator in 2007-2011									
	Lublin Voivodeship					Poland				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Management										
1. Collective accommodation facilities /1000km²	12.2	11.9	11.3	12.8	10.9	21.5	21.9	22.4	23.0	22.5
2. Individual accommodation facilities /1000 km²	-	-	-	0.9	1.7	-	-	-	5.3	6.7
3. Beds per 1000 people	8.8	8.7	8.8	9.3	8.4	15.3	15.7	15.9	15.8	15.7
Use										
4. The use of beds in tourist collective accommodation (%)	32.3	33.8	35.6	33.3	31.9	37.8	37.6	35.8	34.3	34.5
5. Accommodation provided 1000 people	650.2	719.0	742.0	739.0	684.1	1441.8	1486.1	1442.1	1448.6	1483.4
6. Accommodated people 1000 people	283.9	313.0	302.0	305.1	301.2	497.1	513.1	507.3	531.2	557.5

Source: author's study based on the data from the Central Statistical Office Local data Bank in Warsaw

above the national average were achieved during the period considered in the case of potatoes and oilseed and turnip rape (BDL) (Table 2).

Lublin is a region with a high potential for agricultural production, yet it has a relatively low level of its use. Rural areas of the region are characterized by high diversity of natural, economic, and organisational conditions, which determine the level of use of the productive potential of agriculture and rural development opportunities. Improving the use of the productive potential of agriculture requires the implementation of technological advances and the expansion and upgrading of rural infrastructure. In the region, there is a need to support projects determining the implementation of sustainable development, reconstruction of the agrarian structure of rural areas, and to give a multifunctional character to the rural areas (Krasowicz S.).

The state of management and use of natural resources in relation to the function of tourism

In 2011, 273 tourist collective accommodation facilities were operated in the Lublin Voivodeship, i.e. 3.9% of the total number in the country. Hotels (19.0%), hostels (12.5%) and training and recreation centers (7.7%) mainly represented this group. In the period 2007-2011, the number of those facilities decreased by 11.1%. In 2011, tourist collective accommodation facilities had a total of 18.2 thousand beds arranged mostly in hotels (38.4%). In the period 2007-2011, the number decreased by 4%, while in the country it was increased by 4% (BDL).

The indicator of the number of beds per 1000 people in the area was almost half the size in 2011 (8.4 beds/1000 people) in comparison to the country (15.7 beds/1000 people). The voivodeship has unevenly distributed accommodation. In 2011, most tourist collective accommodation facilities were located in the counties focusing the most important tourist attractions: Pulawy - 41, Wlodawa - 38, Zamosc - 23, Biala - 19, Lubartow – 15, and in the cities: Lublin - 27 and Zamosc – 14 (BDL).

Tourist collective and individual accommodation, which includes guest rooms and agri-tourism vacation rentals, is not numerous as evidenced by low values of the saturation of the region with these facilities. In 2011, the number of collective accommodation facilities per 1000km² area of the region was double, and, in the case of individual accommodation, almost four times lower in comparison to the country (the value amounted to -10.9 and 1.7 facilities per 1000km² of the region). In addition, in the case of collective accommodation the rate was reduced in 2011 compared to 2010. One should note, however, the increase in the saturation of the region with individual accommodation facilities - in the period 2010-2011 there was a rapid development of private accommodation. In 2011, agri-tourism farms possessing 220 beds provided 7 240 nights. Three times more nights were provided in the offered rooms (BDL).

In 2011, the number of guests of collective and individual accommodation amounted to 657.6 thousand. The number of guests of tourist collective accommodation in Poland increased by 13.4%, while in the Lublin Voivodeship - only by 6.4%. In 2011, the number of guests in the studied region was 655.1 thousand people, of which 85.1% were Poles (in

the country the percentage of Poles using the services of this group of objects was 79.5%). In the region, the number of foreign tourists during the period increased by 0.4%, while in the country - by 5.0%. In 2011, the number of foreign tourists in collective accommodation amounted to 97.8 thousand (BDL).

The number of people using the facilities of individual accommodation in 2011 amounted to 14.2 thousand people, of which 82.6% used guest rooms. In comparison to 2010, in 2011, the number of people accommodated in guest rooms increased by 20.3%. The rate of accommodated people/1000 people during the period in the region was gradually increasing. In 2011, it reached the level of 301.2, which was much lower than the national level (557.5), whereas the rate of accommodation provided/1000 people in 2011 was more than two times lower in the region than in the country (amounted to – 684.1 and 1483.4) (BDL).

The degree of the use of beds in tourist collective accommodation for the region was comparable in the period 2002-2011 with the degree of the use in the country. In 2011, in the Lublin Voivodeship, the rate reached 31.9%, and it was 2.6 percentage points lower than in the country. During the study period, it showed a slight downward trend (BDL) (Table 3).

The main development potential of tourism and recreation in the Lublin region connected with natural environment and resources values includes well-preserved diversified natural environment resulting from the specific physiographic and geobotanical location of the region, landscape and natural environment attractive for tourist arrivals connected with active qualified tourism, eco-tourism, agro-tourism and leisure tourism as well as recognized qualities of bioclimate, mineral springs and developed health resorts (Plan marketingu…, 2007).

The potential of landscape and natural values of the Lublin Voivodeship is very high, yet unevenly used. The areas with high natural values where tourism has developed most extensively include the western part of the Naleczow Plateau, Leczynsko-Wlodawskie Lake District, and the Roztocze Hills. In addition, there are many other areas with great natural values, including Janow Forests, the Bug River Area, and the area of the Wieprz and Gielczew rivers valleys. Other areas outside urban areas should be included among average natural beauty areas. They occur mainly in the northern part of the region. Those are potential sites for specialist tourism development. Different forms of eco-tourism, alternative tourism should be developed there. In the northern part of the Lublin region, the forms of nature conservation are the least numerous, which reduces the attractiveness of the area, however, facilitates the development of tourism infrastructure (Audyt turystyczny…, 2008).

The major obstacles to the use of natural potential of the region include low use and poor quality of most holiday facilities in the region, insufficient accommodation for mass, specialized and conference tourism, weak tourism infrastructure in attractive tourist areas, very little diversified portfolio of tourism products, insufficient recreational and sports facilities, leisure offers for tourists, and poor use of therapeutic potential (Plan marketingu…, 2007).

Conclusions

— Varied natural conditions of the region determine the specific zoning of the discussed functions and their economic structure.

— The presented data on the state of management and use of natural resources in the Lublin Voivodeship against the rest of the country, in relation to the development of the analysed functions, give evidence of the region's disadvantageous situation in terms of all the three functions. The function of agriculture is particularly unfavourable; in its case, favourable natural conditions cannot be fully efficiently used due to economic and organizational constraints.

— Shaping the three functions within the framework of regional spatial policy and strategy of socio-economic development based on natural resources should take into account natural interconnections existing among these functions. Due to the fact that agricultural sector is undergoing a restructuring process, it will be forced to release workforce, who might be employed by other sectors. In tourism, more efforts are required in the development of tourism infrastructure and the creation of unique tourism products. Simultaneous increase of the role of the function of forestry because of advance in the process of afforestation will contribute to the intensification of the processes of structural transformation of rural areas and at the same time will perform more and more important public functions. This process will stimulate excluding of low agricultural suitability land from agricultural production.

— In the case of Lublin region, multifunctional and sustainable development based on the innovative use of natural resources should be created alongside with recognizing interconnections among the functions of agriculture, forestry, and tourism. They predispose the region to develop these features, however, also to use other options inherent in the development of the SME sector based on the processing of fruit and vegetables, or the production of energy from renewable resources.

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LATVIAN LOGISTICS CLUSTER AND ITS DEVELOPMENT PERSPECTIVES

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Abstract. Nowadays, clusters exist in many and very different industries, including logistics. Clusters as geographically bounded concentration of interdependent organisations can consist not only of private companies but also of labour and professional associations, government authorities, and academic, research and training institutions. Clusters are created and developed in Latvia as well. There is a cluster organisation in the logistics economic sector in Latvia but it has not been scientifically studied so far. The aim of this study is to assess the development of logistics cluster in Latvia (original title of cluster – "Latvian Supply Chain Cluster") and to develop suggestions for its improvement. The monographic method, a case study and focus group discussions were applied in the study. This paper contributes to the development of knowledge in operation of clusters in logistics revealing structure and specialisation of the Latvian Supply Chain Cluster as well as barriers for the development of this cluster and perspectives for its development in the future.
Key words: competitiveness, Latvian Supply Chain Cluster, logistics cluster, regional development, transport.
JEL code: C28, L1

Introduction

In the 21st century, clusters exist in many and very different industries. Clusters are geographically bounded concentration of interdependent organisations and they can consist not only of private companies but also of labour and professional associations, government authorities, and academic, research and training institutions. Clusters should have active channels for business transactions, communication and dialogue. Without active channels, even a critical mass related companies do not operate as a cluster (Rosenfeld S.A., 1997).

Clusters are created and developed in logistics economic sector as well. Logistics clusters are mainly concentrated in or around seaports because seaports are strategically important centres in global logistics and a lot of logistics operations are located in seaports or near seaports.

Clusters are created and developed in Latvia as well. There is a cluster organisation in logistics economic sector in Latvia but it has not been scientifically studied so far. Therefore, the **aim** of this study is to assess the development of logistics cluster in Latvia (original title of cluster – "Latvian Supply Chain Cluster") and to develop suggestions for its improvement. Accordingly, the **tasks** of the study are, firstly, to identify special features which characterise the operation of logistics clusters, and secondly, to study the Latvian Supply Chain Cluster as a case for empirical research. The methods of the study include the monographic method, a case study and focus group discussions. Two focus groups were conducted and their consisted of the representatives of member-organisations of the Latvian Supply Chain Cluster. Overall, 12 persons participated in the focus groups.

Karaev et al. (2007) making a review of literature on clusters revealed that the concept of clusters is always related with competitiveness but a distinction should be made between the competitiveness of a nation, a region, an industry, and a single company. It is important because each level of competitiveness has its own specific set of measures and clusters contribute towards increasing of competitiveness of industries, regions, nations, and companies participating in a cluster. Kowalski (2012) conducted a survey on 50 cluster coordinators and 350 companies belonging to the cluster initiatives in Poland and concluded:

— on microeconomic level – clusters increase the efficiency and productivity of companies as well as their level of innovativeness. Clustering plays an important role in enhancing effective communication between partners (it was confirmed by 70% of surveyed companies), cooperation (61%) and trust (60%) which are important elements in modern innovation processes;
— on mesoeconomic level (including sectoral and regional dimensions) – the main benefit of clustering from this perspective is driving intelligent specialisation of regional economies through spatial concentration of different assets in the sectors where the region has competitive advantage;
— on macroeconomic level – clusters contribute to the GDP growth, reduction of unemployment rate, and higher level of innovativeness of the economy.

Forming cluster industry can create competitive advantage (Porter M.E., 1990). Cluster initiatives can be developed in different sectors of economy, characterised by all levels of technological intensity. Many economists have highlighted the special importance of clusters in high-technology industries (Bresnahan T., Gambardella A., Saxenian A.L., 2001) and improvement of competitiveness of small and medium sized enterprises (Karaev A., Koh S.C. L., Szamosi L.T., 2007).

Research results and discussion

1. Features of logistics clusters

The two types of clusters in logistics sector can be identified reviewing scientific literature on clusters: port clusters (e.g. Chuan-xu W., 2008;

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Table 1

Description of logistics clusters: maritime clusters and port clusters

	Maritime cluster	Port cluster
Definition	Maritime clusters are clusters which consist of a group of industries directly or indirectly related with shipping within a certain area or a nation	The port cluster is a cluster which consists of all economic activities, public and private organisations which are related with the arrival of ships and cargo in ports
Potential members of cluster	Ship operators and a host of auxiliary support services like ports, freight forwarding companies, shipping/linear agencies, stevedovie companies, dredging services and professional services – management, insurance, finance, legal, and accountancy	Terminal operators, hinterland transport companies, transport service providers, warehousing companies, transport intermediaries, port authority
Examples	The South West Maritime Cluster (England), the Maritime Cluster of Japan	The Lower Mississippi port cluster, the port cluster in Rotterdam

Source: authors' construction based on Shinohara M., 2010; Morrissey K., O'Donoghue C., 2013; de Langen P.W., 2004; de Langen P.W., Visser E.J., 2005

de Langen P.W. Visser E.J., 2005) and maritime clusters (e.g. Morrissey K., O'Donoghue C., 2013; Chang Y.C., 2011).

The maritime cluster consists of a group of industries directly or indirectly related with shipping within a certain area or a nation (Shinohara M., 2010). Morrissey and O'Donoghue (2013) investigating potential for the Irish maritime cluster creation identified that the maritime cluster could consist of ship operators and a host of auxiliary support services like ports, freight forwarding companies, shipping/linear agencies, stevedovie companies, dredging services, and professional services such as management, insurance, finance, legal, and accountancy. One maritime cluster can be created in the country or even in the whole region as well as two or more maritime clusters can operate in the country.

Port clusters are usually understood as seaport clusters where companies related with the seaport logistics operate. In the 21st century, seaports work not only with transhipment of cargoes but they also offer additional services (e.g. warehousing, packaging). The port cluster consists of all economic activities, public and private organisations which are related with the arrival of ships and cargo in ports (de Langen P.W., 2004). Activities which are included in the port cluster are cargo handling, transport, logistics, manufacturing, and trade.

As it is seen in Table 1, maritime clusters are focused on shipping, while port clusters – on ports. The central problem in the port cluster is the necessity to create collective action regimes in the port to get benefits (de Langen P.W., Visser E.J., 2005) but in the maritime cluster – to address problems of coordination and fragmentation in maritime sectors and policy (Chuan-xu W., 2008).

2. The assessment of the Latvian Supply Chain Cluster

It is scientifically recognised that the development of clusters can promote regional development and competitiveness in Latvia (Vilcina A., Boronenko V., 2009), facilitate competitiveness of companies in Latvia (Kassalis I., 2011), and promote competitiveness of seaports in Latvia (Kasalis E., Kassalis I., Kasalis J., 2012). Vilcina and Boronenko (2009) argue that clusters emerge and develop in competitive regions where the environment for competition is developed and only Riga region has this environment in Latvia, since it is on the transition stage to the innovation-driven economy. Other regions of Latvia are on the efficiency-driven stage. Kasalis et al. (2012) are convinced that cluster based approach can be applied for increasing competitiveness of the Freeport of Riga in Latvia and clusters can be created on three levels:

— industrial business cluster inside the Freeport of Riga;
— territorial cluster for the Riga region, where the Freeport of Riga is included as a member;
— transport cluster (national, regional or international), where the Freeport of Riga is included as a member.

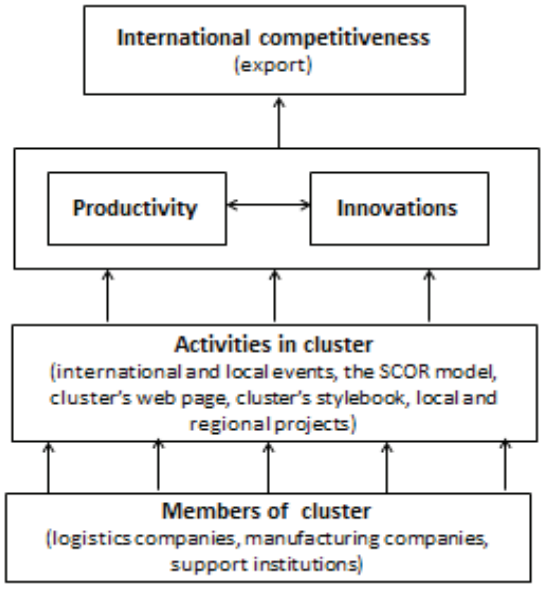
There is an environment for cluster formation in the logistics economic sector in Latvia because all transport modes (sea transport, rail transport, road transport, pipelines transport and air transport) are used for cargo transportation in and through the territory of Latvia as well as international cargo transit transport dominates in rail transport, sea transport (seaports), and pipelines transport. There are three international seaports with wide cargo transhipment profile (Riga, Ventspils, and Liepaja) and seven comparatively small sea ports focused on serving of export goods (mainly timber) and fishing. Three ports (Riga, Ventspils, and Liepaja) are connected to TENT-T road and rail as well as two oil and oil products pipelines to Ventspils (Figure 1). The contribution of international transit cargo transport to Latvian GDP was 6.6% in 2010 (Bulis A., Orovs A., Skapars R., 2012). The Latvian logistics sector is participating in regional and global competition for transportation of goods, and thus, the promotion of international competitiveness of Latvian logistics industry is important.

At the moment, one cluster in the logistics economic sector is operating in Latvia. It is the Latvian Supply Chain Cluster (LSCC). Two focus groups were conducted in October and November 2012 for the assessment of the LSCC. Twelve representatives of member-organisations of the LSCC participated in the focus groups. The

- *location of seaports with wide cargo transhipment profile (Liepaja, Ventspils, and Riga)*

Source: Google Maps

Fig. 1. **Geographical location of Latvia**



Source: authors' construction

Fig. 2. **Model of the Latvian Supply Chain Cluster**

main topics for discussion were: 1) the structure and specialisation of cluster; 2) the activities of cluster in the previous 3 years (since cluster operates); and 3) barriers for the development of the LSCC.

The LSCC is a branch of the Latvian Logistics Association, and thus, the cluster can use networks and resources of the Latvian Logistics Association for its development. The LSCC was founded in 2009, while the Latvian Logistics Association – in 1997. The LSCC was established with financial support of the Ministry of Economics of the Republic of Latvia (the Ministry of Economics). This financial support determined the model of cluster orienting the LSCC on promotion of export (Figure 2). In October 2012, seventeen organisations were the members of the LSCC, among them – logistics companies, manufacturing companies (from forest industry) and support organisations (e.g. academic and research institutions, insurance company). The LSCC defines itself as a "maritime infrastructure related supply chain cluster".

From 2009 to 2011, the activities of the LSCC were financed by the Ministry of Economics supporting project for operation of cluster. The main activities included the organisation of events and trainings, participation in international and local events (discussions, seminars and conferences), implementation of the SCOR model (the Supply-Chain Operations Reference-model) in Latvia, development and maintenance of the cluster's web page, creation of the cluster's stylebook, and participation in local and regional projects. After ending of financial support of the Ministry of Economics, in 2012 the activities of cluster were related with the

participation in regional projects in logistics and cargo transportation financed by the European Union. The topics of the projects are green transport in the Baltic Sea Region, new innovative logistics solutions and networking among maritime clusters in the Baltic Sea Region where the main activities are organisation and participation in events (workshops, conferences), networking, and implementing studies.

The financial support of the Ministry of Economics has determined operational directions and strategy of the LSCC. For all nine supported clusters in Latvia in 2009, the Ministry of Economics applied the same requirements. It means that the activities of the LSCC from 2009 to 2011 depended on financing requirements of the Ministry of Economics doing activities which could be financed and respecting bureaucratic procedures that were a significant barrier for the operation of the LSCC from 2009 to 2011. Members of the LSCC argue that the difficulty is to define common needs of cluster members on what could be done together because there is no mechanism for identification of common interests. The lack of capabilities to participate more in regional projects co-financed by the European Union is another barrier for the operation of cluster.

Members of the LSCC are convinced that there were no commercial benefits from operation of the cluster from 2009 to November 2012 because participation in the LSCC was free of charge and members were not active and motivated as well as the operation of cluster was restricted by financing requirements of the Ministry of Economics. Benefits from the LSCC were the activities organised by the LSCC – discussions, conferences, trainings, studies, and a common cluster web page.

Suggestions for the improvement of operation of the LSCC from its members are, firstly, to develop new strategy where new operational directions and priorities are defined, since no more governmental support is received for the operation of cluster. New orientation of the LSCC should be related with priorities and activities which have potential for creating commercial benefits for members and take into account trends in transport and logistics in the European Union like regionalisation and green transport. Research and academic institutions could be involved more in the LSCC, since it would improve expertise, knowledge transfer, and innovations in the cluster. Secondly, solutions for regular communication with the members of cluster should be created in order to facilitate the identification of common interests of cluster's members. Some recommendations suggested by the cluster's members for the cluster in its further work are to develop activities which involve all members or essential part of members in activities of cluster and increase contribution of cluster's members in organising activities and initiatives as well as to issue a regular newspaper for the information of cluster's members on the news of cluster and logistics sector. Thirdly, there is necessity to improve capabilities (e.g. co-financing and expertise) for participating in regional projects co-financed by the European Union. In November 2012, the LSCC has worked in two projects co-financed by the European Union, yet the LSCC has to improve its capabilities to be involved more in similar projects. Some members of the LSCC consider that the utility from cluster's involvement in projects should be increased and should be focused on the creation of commercial benefits for the members of cluster. The example of the LSCC shows that the creation and operation of logistics cluster provide different activities for the members of cluster, while the creation of commercial benefits for members of cluster is a challenge and activities of cluster cannot bring commercial benefits – there are comments and experience of cluster's members on the cluster's operation from 2009 to November 2012.

The assessment of the LSCC done in this study has indicated that there is a lack of knowledge between the cluster management and members of cluster on the methods how and which activities (or combination of different activities) could be transformed into cluster commercial benefits (acceleration of innovations, productivity, and competitiveness). This problem is not solved in the cluster theory in logistics sector as well. Previous studies on clusters' development in the logistics sector have developed suggestions for cluster management based on empirical research (e.g. Morrissey K., O'Donoghue C., 2013; Shinohara M., 2010) but those suggestions have not been devoted to the development of proposals how cluster activities could be transformed into acceleration of innovation, productivity, and competitiveness in companies which are members in the port cluster or the maritime cluster. Some scientists in previous studies of the field have mentioned that there is no clear evidence that companies which are members of cluster are more competitive than companies which are not members of cluster in the same industry (e.g. Chang Y.C., 2011; Karaev A., Koh S.C.L., Szamosi L.T., 2007). These issues should be addressed in the scientific studies in the future.

Conclusions, proposals, recommendations

1. There are two types of clusters which exist in logistics industry: maritime clusters and port clusters. Maritime clusters are formed focusing on shipping, while port clusters – on ports.
2. In Latvia, one cluster operates as an organisation in the logistics economic sector - the Latvian Supply Chain Cluster. It was founded in 2009 and it is affiliated with the Latvian Logistics Association. The Latvian Supply Chain Cluster is a maritime cluster.
3. The activities of the Latvian Supply Chain Cluster include the organisation of events and trainings, participation in international and local events (discussions, seminars and conferences), implementation of the SCOR model in Latvia, development and maintenance of the cluster's web page, creation of cluster's stylebook, participation in local and regional projects, networking and implementing studies. The cluster members are convinced that the operation of cluster has not brought commercial benefits for its members during the first three years since the LSCC has been operated because participation in the LSCC was free of charge and members were not active and motivated as well as the operation of cluster was restricted by financing requirements of the Ministry of Economics.

4. The operation of the Latvian Supply Chain Cluster can be improved in three ways. Firstly, it is necessary to develop a new strategy where operational directions and priorities are redefined, because no more governmental support is received for the operation of cluster. Secondly, solutions for regular communication with the members of cluster should be created. Thirdly, it is necessary to improve capabilities (e.g. financing and expertise) for participating in the regional projects. All activities organised by cluster should be focused on creation of commercial benefits for its members.
5. In the future, the scientific studies on clusters in logistics sector can be devoted to the development of methods how and which activities (or combination of different activities) could be transformed into cluster commercial benefits (acceleration of innovations, productivity and competitiveness) as well as a methodology should be developed to facilitate a comparative assessment of companies' competitiveness by comparing companies-members of cluster with companies which are outside the cluster organisation in the same industry.

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NATIONAL INNOVATION SYSTEM OF LATVIA AND TRIPLE HELIX MODEL OF INNOVATION DEVELOPMENT

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Abstract. Innovation is an important component of the development of high-tech knowledge economy. It is especially important for developing, transitional, and catching up economies like Latvian, having no significant natural resources. In terms of innovation, Latvia has a serious backlog compared with other EU countries. The Triple Helix (TH) model of interaction between university, industry, and government, aiming creation of innovations, is already used to promote National Innovation Systems (NIS) in many countries and can be used in Latvia as well. According to the authors' hypothesis, due to specific historical development and people's mentality, the NIS in Latvia can be based on the national TH model combining the best foreign experience and considering local conditions. The aim of the research is to study the place and role of the Triple Helix model in NIS of Singapore, South Korea, and Sweden and the potential applicability of their experience and models in Latvia. Special attention is paid to the role of universities, which can become the engines of innovation development. The authors have made recommendations for Latvian TH model development and appropriate changes in Latvian NIS.
Key words: economy of Latvia, innovations, National Innovation System, Triple Helix model.
JEL code: R11

Introduction

Innovation is an important component of the development of high-tech knowledge economy. According to ideas of J.Schumpeter, the main target of innovations is to get the oligopolistic rent over the market profit (Schumpeter, 1949). The rent is shared between entrepreneurs, banks, workers, and state. Therefore, as a stakeholder of innovative development, the government could benefit from the creation of innovation environment and support of innovative business. Technologies of creation of innovation environment and innovations are particularly important for developing, transitional, catching up economies having no significant natural resources, like Latvia. According to some figures given further, Latvia has problems concerning innovation development in comparison with other EU countries, and import of foreign experience and its successful implementing in national models could be a way to solve some of these problems.

Developed by H.Etzkowitz and L.Leydesdorff in mid 90s, the Triple Helix (TH) model of interaction between universities, industry, and government successfully explains some issues related to creation, development, and implementation of innovations in countries and regions. According to this model, an innovation is an outcome of interaction among three social coordination mechanisms: markets, knowledge production, and (public or private) governance. Three environments or functions are specified in the model: wealth generation (industry), novelty production (academia), and public control (government) (Etzkowitz, Leydesdorff, 2000). The TH model is already used to promote National Innovation Systems (NIS) in many countries and can be used in Latvia as well. According to the authors' hypothesis, the NIS in Latvia can be based on the national variant of the TH model combining the best foreign experience and considering local conditions.

The aim of the research is to study the place and role of the Triple Helix model of university-industry-government relations in NISs of Singapore, South Korea and Sweden, its distinctive features in these countries and potential applicability of their experience in Latvia.

In the framework of the research, the authors carried out a review and analysis of scientific monographs, articles, and scientific papers of local and foreign publicists. The data from official documents and bulletins of Latvian, Swedish, Singaporean, and South Korean governments and Higher Education Institutions (HEIs), reports of international institutions and international statistics were examined, summarized and interpreted in order to formulate comprehensive interaction between state, business, and academia. Cases of application of the TH model in NISs of Singapore, South Korea and Sweden were observed in authors' research. The applied part of the research was undertaken to verify the applicability of foreign experience in economic development in Latvia. The results given in the research are a part of a wider research devoted to the application of innovation development models in the regions of Latvia.

The TH model in Sweden was studied by many authors, including Etzkowitz and Leydesdorff, Benner and Sandström (2000), Danell and Persson (2003), Pin and Liu (2010), Fogelberg and Thorpenberg (2012); in Singapore - by Parayil (2005), Wong, P.-K. (2006), Wong, P.-K., Ho, Y.-P., Singh, A. (2006); in South Korea – by Salmi (2006), Shapiro (2007), Shapiro, So, Park (2010), Chung (2011), Acha and Martin (2011). The aspects of the TH model in Latvia were researched by Ambrusevic (2008), Ozols, A., Eglitis, J., Ozola, E. (2012a, 2012b). The TH model is studied in the Institute

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Table 1

Stylized Stages of Economic Development and Changes of NIS of Singapore

	1960s-1970s	1970s-1980s	1980s-late 1990s	From late 1990s
Economic Development	Beginning of DFI-driven, export led industrialization	Transition to NIE	Transition from NIE to developed economy	Transition to knowledge-based economy
National Innovation System	Primary focus on developing operative capability to man production	Primary focus on developing adaptive capability to support process of technological deepening	Primary focus on developing innovative capability to support applied R&D	Primary focus on developing intellectual creation and commercialization / entrepreneurial capability to support knowledge-based economic growth

Source: Wong, Ho, Singh, 2006

for Triple Helix Innovation (Hawaii, the USA) and International Institute of Triple Helix (Spain).

Research results and discussion

1. Case of Singapore

Singapore is one of the world countries vanguards of innovative development. After gaining fully independence, in 1965, Singapore became one of the original "Four Asian Tigers" or Newly Industrialized Economies (NIE). Between the 1960s to the 1980s, the country was able to attract numerous Trans-National Corporations (TNC) and Direct Foreign Investment (DFI). The modern economy of Singapore was built mostly due to the state participation through Economic Development Board, other specialized statutory boards, economic promotion agencies, and foreign investments, rather than activities of small and medium enterprises (SMEs). The changes in priorities of NIS of Singapore during various stages of economic growth are reflected in Table 1.

As it is seen from Table 1, in 2000s the focus of national innovation system was on development and commercialization of intellectual capital. Since the mid-1990s, the system of innovation development in Singapore faced the TH model. The government has set as its main objective the creation of an innovative environment through a strategic alliance between the companies, national research centres and universities, statutory boards, and university spin-off companies (Parayil, 2005). The Singaporean model is focused on the universities, who are the main engine of innovation. Universities are being asked to contribute to the economy in real time (Parayil, 2005).

State-owned National University of Singapore (NUS) became a leader of the new policy. In order to cope with the new tasks, its organizational structure was changed - besides traditional Provosts (Vice-Chancellor), a new position of a Chief Executive Officer (CEO) was added, whose responsibilities included: communication and coordination with overseas colleges; management of Entrepreneurship Centre; industry and technology relations; venture support; consulting; expansion of external relations, and publishing. Accordingly, a special unit was created: the Industry and Technology Relations Office (INTRO) responsible for formation and guidance of spin-off firms and incubation of high-tech start-ups (NUS, 2005).

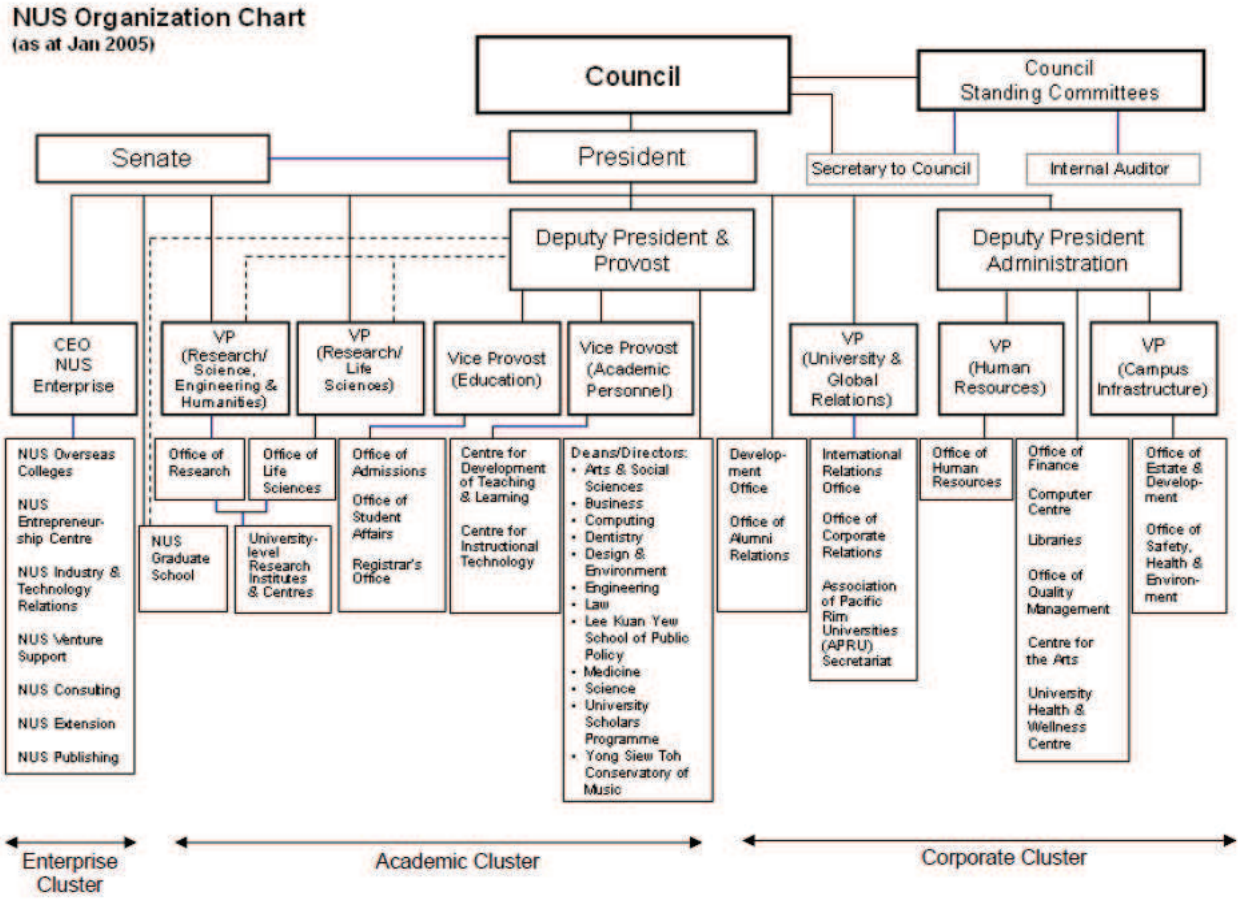
A more rigid bureaucratic control by the state and lower demand and ability of private enterprises to commercialize university knowledge suggested that the pre-conditions for TH dynamic interactions were much weaker in Singapore than in the advanced economies. Therefore, Singapore universities had greater urgency to take on an "entrepreneurial" role (Wong, Ho, Singh, 2006). They had to be more pro-active in commercializing their inventions through spin-offs and start-ups, rather than relying on outside private enterprises to license them. Similarly, they needed to undergo more drastic reform of their organizational structure and incentive system, in order to change the culture and mindset of their staff towards knowledge commercialization (Wong, Ho, Singh, 2006).

Another factor increasing the role of universities in the innovation agenda in Singapore was a change of priorities in the area of industry. In 2000, the Singapore government announced a strategic shift towards the promotion of biomedical science and technology as a leading sector in the economy for the 21st century. Moreover, in mid-2000s the environmental and water technologies and interactive digital media were added to them (Biomed-Singapore, 2011).

The country, its industry and academia just had no enough educated people to achieve their goals. Therefore, the government suggested for the local universities to take on an additional economic role - the attraction of foreign talents (Wong, Ho, Singh, 2006).

2. Case of South Korea

Another country that achieved great success in economic and innovation development having begun from very low starting points is South Korea. Its GDP was smaller than in Somalia and Afghanistan in 1960s (CIA World Factbook, 2012). In the beginning of 1980s, the indicators of industry and agriculture of South Korea and Latvia SSR were comparable (DOCEX, 1992; KoStat, 2011). Now it is assessed the 13th economy in the world (CIA World Factbook, 2012). Being a great example of catching up development (one of its models called by a Japanese economist Kaname Akamatsu - "a paradigm of "flying geese" (Akamatsu, 1962)), South Korea used various methods and ways to promote its economical and social growth. In 1990s, the government took a course to wide support of SMEs and innovative development having created



Source: NUS, 2005

Fig.1**. NUS Organization Chart**

geographical agglomerations of knowledge and industry (Ozols, 2011).

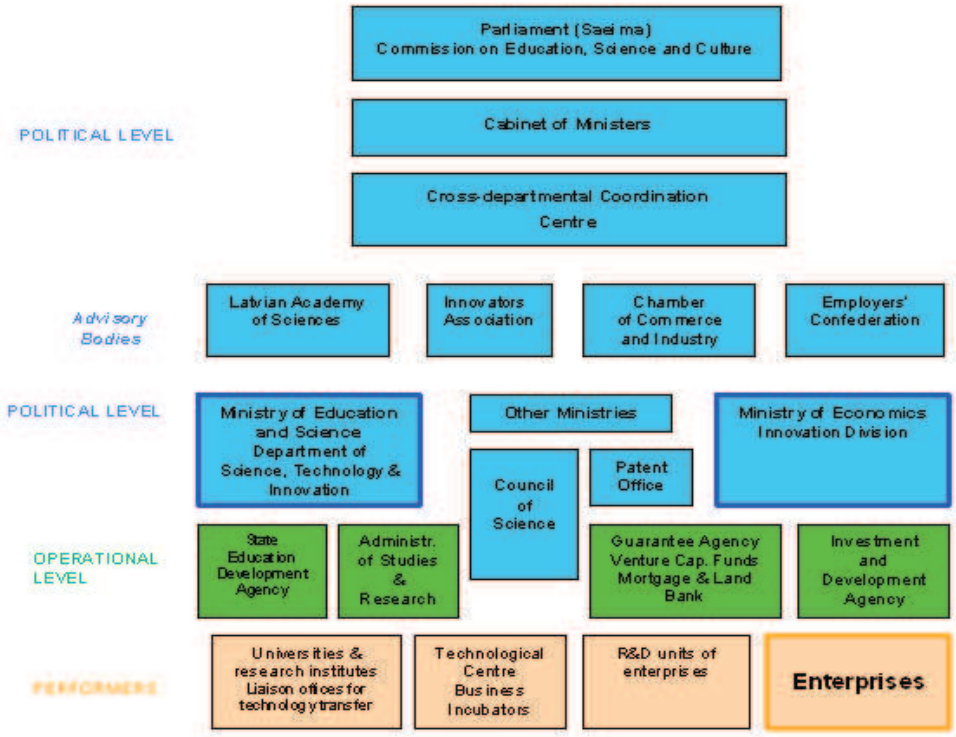
In 2006, the Korean government adopted the second stage of Brain Korea 21 Program (2006-2013) to finance the selected university research projects, especially in the areas of technology development in collaboration with industry and development of regional balance. A Korean version of the TH model was called NURI (New University for Regional Innovation) Project. Only higher education institutions located outside the capital region could be the beneficiaries of the NURI funds. USD 1.4 billion were invested over a period of five years (2004-2009). In 2009, this project was transformed into the World Class University (WCU) Project with allocation of government funding of USD 617 million. Together with it, a "High risk, high return" pioneer research project was started – government public investment in strategically important areas, especially basic research and advanced technology R&D in biotechnology, nanotechnology, and brain research. Total government R&D investment increased by 2012 to USD 16 billion (Kim, 2010; Chung, 2011). NURI/WCU projects aimed:

— the strengthening of university/industry and university/regional authorities linkages, which supposes the involvement of industrial sector and regional governments to the universities' strategic planning, including industry representatives into the Boards of Trustees, participation of industrial practitioners in the creation of study programs, lectures of leading businessmen, specialists and managers, post-practice, consultations and joint projects with companies, science parks, and incubators financed by private companies and local governments from regional budgets (Salmi, 2006; Shapiro, 2007);

— increase of universities' role and participation in regional economies, priority of regional projects for universities' researches, and regional universities in local grants, promotion of local innovative activity (Salmi, 2006).

3. Case of Sweden

"Sweden is among the countries who invest most in both the private and public sector in research and development (R&D) in relation to GDP. This activity is conducted in Sweden primarily in large international business groups and universities" (MEEC, 2012). In 2011, Sweden ranked the first in the EU in terms of innovation (IUS, 2012). It is a great example of employing the Laissez-Faire TH model. Swedish Governmental Agency for Innovation Systems (VINNOVA) uses TH concept as the theoretical framework for programmes and policies fostering public private relationships (Jacob, 2006).



Source: Kristapsons, Dravniece, Adamsone-Fiskovica, 2012

Fig.2**. Organizational structure of Latvian System of Innovation, October 2011**

The Swedish Agency for Economic and Regional Growth (Tillväxtverket) also participates in TH activities.

Swedish policy has ambitions of finding a better balance between top-down and bottom-up initiatives implying a stronger regional focus (Coenen, Asheim, 2005), though the regional imbalance still exists - the three main urban regions Stockholm, Gothenburg, and Malmö have about 75 percent of all R&D activities and outputs. These agglomerations also have a more balanced structure of academic, governmental, and private research activities than smaller regions, and the interactions among sectors within these regions are more intense (Danell, Persson, 2003). According to Swedish model, factors that can be unique to a certain place or region are the existence of specialised knowledge, local social networks, and trust between the parties concerned (MIEC, 2004).

As the main bodies of research and development, Swedish universities, which rank top worldwide in getting public funding, highlight their responsibility in transferring knowledge into productivity based on the framework of TH model. The model of knowledge transfer within TH model in Sweden is mainly state-pulled, corporate-pushed and university-coordinated (Pin, Liu, 2010). The work at universities aiming at valorisation of research also include research collaboration with existing large and small enterprises, therefore, "the capacity of these actors' to collaborate with each other is crucial to development and renewal in society at large" (MEEC, 2012). In the "Strategy for entrepreneurship in the field of education", Sweden Government "outlines why entrepreneurship is important in both providing skills for those who want to start and run businesses and stimulating young people's creativity", thus, the Government wants entrepreneurship to be integrated in the society throughout the education system (MEEC & MER, 2012).

Sweden has no officially proclaimed higher priority industries. Instead, it announced an innovation strategy that implied innovation social climate; knowledge base for innovation; innovative trade and industry; innovative public investment; innovative people (MIEC, 2004).

To promote the TH model, many other bodies beside state agencies were created, like a business incubator STING (Stockholm Innovation and Growth), Medicon Valley Swedish-Danish medical cluster, a Swedish-Danish cross-border initiative Øresund Science Region (ÖSR), Swedish-Norway innovation centres, etc.

Although there are many critiques of the TH model in Sweden (Tuunainen, 2002), it is one of the most powerful national ideas considering innovation and economic development. It is becoming even more popular while many manufactures, including automotive, are being moved to other countries (Etzkowitz, Klofsen, 2005).

4. Situation in Latvia

In 2011, Latvia ranked 27th in the EU in terms of innovation (IUS, 2012); Gross Domestic Product (GDP) expenditure on R&D (GERD) was 0.45% (the EU average 2.01%); business enterprise expenditure on R&D (BERD) was 0.16% of GDP (the EU average 1.21%); Summary Innovation Index score of Latvia was 0.201 (the EU average 0.516) (Kristapsons, Dravniece, Adamsone-Fiskovica, 2012); more than 99% of Latvian enterprises are SMEs (CSBL, 2012), and investments in

entrepreneurship and innovation made only 9.6% of the available EU resources (Egle, 2012).

The present structure of Latvian Innovation System is rather cumbersome and vague, there are many bodies in charge, but the scheme of their interaction and communication, including horizontal links, is rather uncertain (Kristapsons, Dravniece, Adamsone-Fiskovica, 2012).

"Low demand and level on business R&D is one of the major burdens in Latvian innovation system, as there is a lack of communication and a mismatch between university research and industry" (Ziegenblag, Montean, 2010). The priority industries in Latvia are technologies, wood processing, and design (Kristapsons, Dravniece, Adamsone-Fiskovica, 2012).

Conclusions, proposals, recommendations

In the framework of the "statist" TH model, central and local governments are able to promote innovation policy indirectly through the support of local HEIs and SMEs, having the maximal synergistic effect with minimum investment.

Based on the research, the authors suggest the following recommendations.

1. Increase the role of local governments and regional HEIs in the NIS.
2. Implement the innovation policy based on the TH model, at least in regions.
3. Review and accept the list of priority industries based on predictive conjuncture, resource availability, and possibility of resource obtaining.
4. Implement the financial incentives for HEIs attracting private sector investment.
5. Ensure foreign talent - students, researchers, and faculties - attraction to the country with appropriate legislation changes, if necessary.
6. Support the commercialization of knowledge through all additional activities: special support programmes for students and academia for entrepreneurship activity, tax incentives to start-ups and spin-offs.
7. Increase the efficiency of the use of the EU funds through the inclusion of the regional HEIs into the programmes connected to the promotion of entrepreneurship activities.

Some countries have already accumulated sufficient experience in the implementation of the TH model. It is possible to use this experience in Latvia immediately to the stage of practical application, taking into account local conditions.

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LATVIA'S "SUCCESS STORY" IN THE CONTEXT OF REAL AND SUBJECTIVE WELL-BEING

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Abstract. For struggling against the crisis, the population of Latvian had to suffer many unpleasant moments and the situation has dramatically affected the population's satisfaction with life. The first signs of recovery and balance of Latvia's economy could be observed during 2011. The surveys reveal that the level of indicators of inhabitants' subjective well-being of the year 2008 was only reached at the beginning of 2012. On the one hand, this achievement indeed can be considered as Latvia's "success story" but, on the other hand, there is a question was it not possible to get over the crisis within a shorter period and with fewer losses? The aim of the present article is to study the interrelation of the real economic indicators in Latvia and inhabitant's subjective attitudes to life in this country taking the example of Latvia during the period of its economic downturn and recovering. As a result, the author of the article believes that the situation Latvia has gone through, when getting out of the crisis, cannot definitely be considered as Latvia's success story, which is widely advertised in mass media. However, the author cannot completely disclaim some known achievements. The evaluation of subjective well-being of Latvia's population, in 2011 with the dynamic recovery of economy and already in the first half of 2012, achieved the pre-crisis level, indicating that despite not a very humane policy of combating the economic crisis, the population of Latvia was able to go through it and is facing the future hopefully. Research methods include the monographic method, logical analysis and synthesis method, and the deduction method.
Keywords: Latvia, "success story", subjective well-being, economic crisis.
JEL code: O11, I31

Introduction

In the second half of 2008, Latvia faced the downturn in economy, when an enormous bubble of real estate, which actually began to swell in 2004 and 2005 when the borrowing was cheap, finally burst. In order to combat the crisis, the population of Latvia faced numerous unpleasant moments – ruthless national budget cutbacks, wage cutbacks for persons employed in the public sector, cutbacks of education and medicine spending, increased unemployment, an attempt to cut age retirement pensions, tax increase, production output decrease, company insolvencies etc. The government of Latvia and some external observers believe that Latvia's crisis combating measures are to be deemed a "success story", and Latvia was depicted as an example by the media of various countries. But what about the inhabitants of the country? All these negative socially economic changes exerted a destructive influence upon the inhabitants of Latvia and consequently upon not very high subjective evaluation of life and current events in this country. The surveys conducted by the Eurobarometer and the research centre SKDS reveal that population has been substantially affected by the crisis when compared with the average values in Europe.

In 2011, first signs of recovery of economy were observed in Latvia. However, as regards the inhabitants' subjective well-being, the data provided by the Eurobarometer and the research centre SKDS show that the values of indicators of the inhabitants' life satisfaction and happiness of the year 2008 were achieved only in the first half of 2012. Analysing the economic data and inhabitants' subjective life evaluation in Latvia from 2008 to 2012, the author drew ambiguous conclusions about the way out of the economic crisis and the achieved results. The majority of local and world observers consider this long-expected way out of such a hard economic crisis to be Latvia's "success story"; though, this way out has been rather long and full of unpleasant moments. Though, if one examines the inhabitants' subjective well-being has been affected during the crisis, and analyses the world famous economists' research of the Latvian government's action in crisis combating, a question emerges – can this achievement really be named a "success story"?

The aim of the present article is to study the interrelation of the real economic indicators in Latvia and the inhabitant's subjective attitudes to life in this country taking the example of Latvia during the period of its economic downturn and recovering.

The tasks of the research are as follows: to study the subjective attitudes of the population of Latvia with regards to the existing dynamics of national economy rates starting from 2007 by analysing economic processes in Latvia and to offer the author's outlook on the so-called "success story" of Latvia by rendering the activities of the period on the subjective well-being of the population of Latvia.

Research object – inhabitants of Latvia.

Research subject – objective well-being indicators and subjective evaluation of life of the inhabitants of Latvia during the economic crisis.

Research hypothesis – although, there have been positive results in overcoming the economic crisis in

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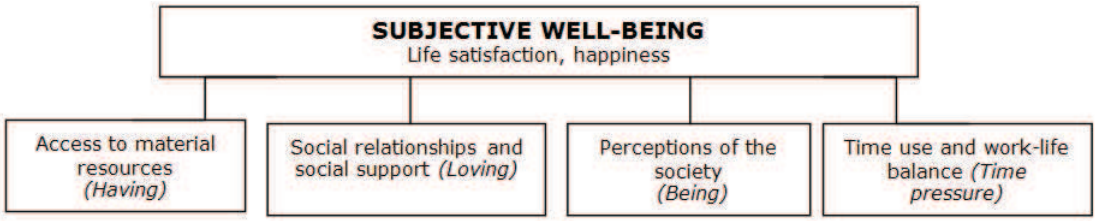


Source: Böhnke, 2005

Fig. 1. **Subjective well-being and its determinants**

Latvia both in objective indicators and in the inhabitants' subjective evaluation, the experience of Latvia cannot be named a "success story".

Research methods – monographic method, logical analysis and synthesis method, and deduction method.

Theoretical research substantiation

At the end of the 20th century, world scientists and researchers started deeper studies on people's subjective attitude to the processes happening within a definite area or people's evaluation of life as a whole. The concept ***'subjective well-being'*** was introduced in 1984 by E.Diener, one of the initiators of 'happiness' scientific research. Initially, the concept 'subjective well-being' was used for studying subjective emotions, attitudes, and it was referred to pleasure, happiness, or *hedonism* approach. Diener with colleagues (Diener, Oishi, Lucas, 2003) affirm that subjective well-being is a measure for individuals' and society's life quality. Now, the concept 'subjective well-being' is used in various ways: some people use it for all well-being measurements, which are not related with economic indicators, while others designate all well-being measurements in psychology and sociology. The field of the subjective well-being includes the scientific analysis in relation with people's evaluation of their life in specific moments (happiness) and within longer periods (general satisfaction with life) (Kim-Prieto, Diener, Tamir, Scollon, Diener, 2005).

When analysing a person's subjective well-being, his/her happiness feeling indicators are often taken into account. Several factors, i.e. life aspects, influence people's subjective well-being (Figure 1).

The influence of the material resources factor on people's subjective well-being is examined by a relatively new branch of economic science – ***happiness economics.*** The study of happiness is a fairly new venture in economics. The economics of happiness approach provides us with new tools and data for developing measures of welfare that include income metrics but also extend well beyond those metrics. This approach does not purport to replace income-based measures of welfare but instead to complement them with broader measures of well-being. Those measures are based on the results of large-scale surveys, across countries and over time, of thousands of individuals who are asked to assess their own welfare (Graham, 2011). Representatives of this approach analyse the level of subjective well-being in relation with the material well-being, and other social and economic factors, because there is a certain interconnection between inhabitants' satisfaction with life and economic indicators in the country (on the macro level) (Hagerty, Veenhoven, 2003; Dolan, Peasgood, White, 2008; Stevenson, Wolfers, 2008; Di Tella, MacCulloch, Oswald, 2001), and in the family (on the micro level) (Stevenson, Wolfers, 2008; Sirgy, 2012; Headey, Muffels, Wooden, 2008; Han and Hong, 2011).

Nowadays, economists study how such macroeconomic indicators as GDP per capita (Hagerty and Veenhoven, 2003; Veenhoven and Hagerty, 2006; Dolan, Peasgood, White ,2008; Deaton, 2008; Layard, 2005; Kahneman and Deaton, 2010), inflation level (Di Tella, MacCulloch, Oswald, 2001; 2003), unemployment and employment (Lelkes, 2006, Lucas, Clark, Georgellis, Diener, 2004), income inequality (Alesina, Di Tella, MacCulloch, 2004; Sanfey, Teksoz, 2008) are related with inhabitants' life satisfaction. The individual's material well-being on the micro level is also examined, i.e. influence of people's income, savings, and debts on their subjective well-being.

Though, there are research studies affirming that the material factor does not have any impact on people's subjective well-being, or it is insignificant (Easterlin, 1974, 1995; Bjørnskov, Gupta, Pedersen, 2008; Rojas, 2011).

However, the majority of researchers declare that the material factor significantly influences people's subjective evaluation of their life. For example, Hagerty and Veenhoven (2003); Veenhoven and Hagerty (2006); and Dolan, Peasgood and White (2008) proved that increasing national income *did* go with increasing national happiness, and the GDP increase directly correlated with the inhabitants' subjective well-being. Deaton (2008) argues that high-income countries have greater life satisfaction than low-income countries; furthermore, he notes that there is no definite threshold for the income level. Whereas, Layard (2005) believes there is a certain threshold of people's wealth ≈ USD 20,000 a year per capita; when reaching it, the feeling of happiness and total satisfaction do not depend on the income level anymore. However, in countries, where the income per capita is lower than this threshold, the situation is completely different: individuals' subjective well-being directly depends on the provision of primary living conditions. Kahneman and Deaton (2010) discovered the following correlations: people's feeling of happiness increases when their income increase, yet to a certain point of ≈ USD 75,000 per year, exceeding this limit people do not feel happier. As regards people's total satisfaction with life – after this income threshold, money can still influence people's satisfaction with life but not emotional well-being (happiness). Stevenson and Wolfers (2008) reassess 'the Easterlin paradox' *(Easterlin paradox: 'In all societies, more money for the individual typically means more individual happiness. However,*

raising the incomes of all does not increase the happiness of all'), showing that a positive relation between GDP per capita and life satisfaction exists on both the cross-country and within-country levels, which holds for both rich and poor countries. Later, Easterlin and Angelescu (2012) observed that happiness did change over the course of the business cycle in the developed and transitioning economies – rising with the peak of the cycle and ebbing with the downturns.

There are numerous proofs demonstrating that inhabitants' subjective well-being is influenced not only by the GDP changes but also by other economic indicators such as income inequality, inflation, unemployment, assets, and debts. Alesina, Di Tella and MacCulloch (2004) find that while European respondents' life satisfaction is negatively affected by inequality, the effect does not hold for American respondents in general. In another study, Sanfey and Teksoz (2008) use data from the World Values survey and find that the effect of income inequality, measured by the Gini coefficient on happiness is negative for individuals in transition countries and positive for the non-transition ones. Di Tella, MacCulloch and Oswald (2001) show that people appear to be happier when inflation and unemployment are low, unemployment depresses reported well-being more than inflation does. Studies consistently show a large negative effect of individual unemployment on subjective well-being (Lelkes, 2006; Lucas, Clark, Georgellis, Diener, 2004). Di Tella, MacCulloch, and Oswald (2003) argue that macroeconomic forces have marked and statistically robust effects on reported well-being.

Sirgy (2012) believes that people's subjective satisfaction with life depends more on their possessed assets than on their income. Headey, Muffels, and Wooden (2008) demonstrated that household (a measure that is broader than income which includes housing, business assets, equity and cash investments, bank accounts, accumulated pension holdings, vehicles and collectibles, housing debt, credit cards, student debt, and personal debt) was a stronger predictor of life satisfaction than household income alone. Han and Hong (2011) also show that assets and debts significantly influenced life satisfaction patterns.

Research results and discussion

In 2008 and 2009, as many countries fell into recession due to the global financial crisis and world recession, Latvia experienced the worst loss of output in the world. From the point of view of the scientific research, the state economic crisis is a good time for measuring inhabitants' subjective well-being level in relation to material well-being and other social factors.

Analysing the data of the Central Statistical Bureau of Latvia it was estimated that the country lost 21.2% of its GDP from 2007 to 2010. In addition to the loss of national income, there have been other social and economic costs of the Latvian government's strategy of internal devaluation. The official unemployment rose from 6.0% in 2007 to 16.9% in 2009 and 18.7% in 2010. Even after two years of the recovery, the unemployment rate remains high at 13.8% in the third quarter of 2012 (CSB). Furthermore, taking into account the number of people who left Latvia searching for better life in 2009-2010, reaching about 80,000 people (Hazans, 2011), and conceding that these persons have mostly been economically active inhabitants aged up to 35, the author of the research estimated that the real rate of unemployment in 2010 could have reached 20.1%!

Another way to evaluate the impact of the crisis and economic policy on the labour market is to look at employment. Using data of the Central Statistical Bureau of Latvia, the author calculated that since 2007 the employment level in the group of inhabitants aged from 15 to 74 had dropped about 15.9% to the bottom in 2010.

The economising policy chosen by Latvia for overcoming the crisis was firstly directed to lowering wages. The most significant salary decrease was done in the public sector, where the average gross salary was reduced by 16.7% from 2008 to 2010 (LR CSB). However, the real wages of working people in Latvia reduced by 26.4% taking into account inflation (LR CSB). Reviewing the poverty risk index in Latvia, it was 6.7% in 2007, and during the crisis it grew up to 10.2% in 2010 (LR CSB).

Analysing the dynamics of the volume of Latvian inhabitants' gross financial assets (cash, securities, bank deposits, other deposits, insurance policies, i.e. all individual's financial property), it is possible to conclude that the decrease of Latvia's population financial assets in 2009 in comparison with 2007 made -8.5% and it was the fourth largest downturn in the world after Greece, the USA, and Spain. Furthermore, in 2009, the amount of Latvian households' debts reached 51% of the state GDP, and it was the second highest indicator in the Eastern Europe (after Estonia) (Heise, 2010).

Has it been success? When implementing the 'internal devaluation' crisis combatting policy, international mass media declared it an example of successful macroeconomic policy. "Latvia stands out as an example of how such a financial crisis can be resolved", A. Åslund and V.Dombrovskis wrote in 2011 in the book published by the Peterson institute for International Economics. "When a country needs to address underlying structural inefficiencies in the economy, internal devaluation is preferable to exchange rate devaluation…" (Åslund, Dombrovskis, 2011). On the contrary, a range of world famous economists (Krugman, 2012; Wren-Lewis, 2012; Weisbrot and Ray, 2011) affirm that in reality Latvia did not implement the internal devaluation policy as such, rather, that the economic recovery resulted from the government not adopting fiscal tightening for 2010 as well as an expansionary monetary policy caused by rising inflation.

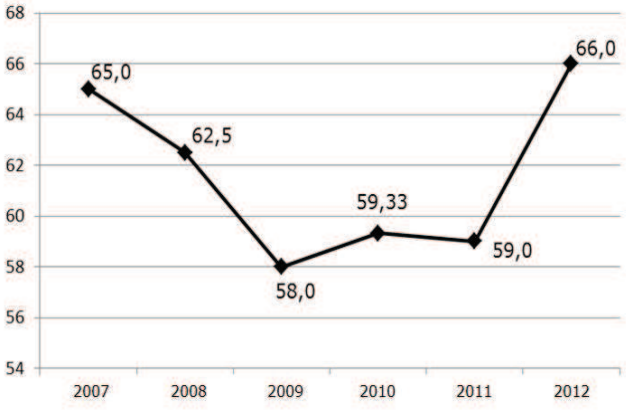
Moreover, economists of the International Monetary Fund, Corsetti, Meier and Müller (2012) drew a conclusion that the increase of the government's expenditure usually caused growth of GDP; it means that the government's expenditure multiplier brings to effect. The most positive effect was achieved exactly on the conditions of the economic crisis. Although negative consequences were observed, i.e. inflation, increase of trade surplus and decrease of the currency rate, growth of the government's expenditure becomes an efficient tool for economy stabilisation (Corsetti, Meier and Müller, 2012). Yet, Latvia was pressured by the International Monetary Fund, and Swedish and other European banks to adopt the bad policy (otherwise, Latvia would not have been disbursed the international loan but by devaluing the lat, foreign banks would lose millions of euro, since

the largest part of the issued loans was in euro) (Weisbrot and Ray, 2011). The devaluing of the Latvian lat would also have thrown the hope to access the Eurozone to distant future. If the government of Latvia would have chosen other 'softer' tools for economy stabilisation, the crisis period could have been shorter and less destructive for the inhabitants of Latvia (Weisbrot and Ray 2011).

Subjective well-being of Latvia's inhabitants. As a result of the economic crisis, the subjective life evaluation of Latvia's population has been significantly affected. Just before emergence of the crisis, the data from the survey conducted by the Eurobarometer revealed that the population of Latvia had been mostly concerned about the high inflation and the prices hike as told by 71% of the population surveyed. Life satisfaction of the population during the first half of 2008 had reached 63%, in comparison with the EU-27 average value of 77% (Eurobarometer 2008a). The research conducted by the Eurobarometer during the second half of 2009 revealed that the following problems had prevailed among the population of Latvia – the economic situation in the country (indicated by 46% of the surveyed) and unemployment (indicated by 33% of the employed). The situation had dramatically affected population's satisfaction with life and over one and a half year it had dropped by 5% and reached a low of 58%. Nevertheless, the average value of the EU-27 concerning satisfaction of the quality of life had risen by 1% reaching 78% (Eurobarometer, 2009).

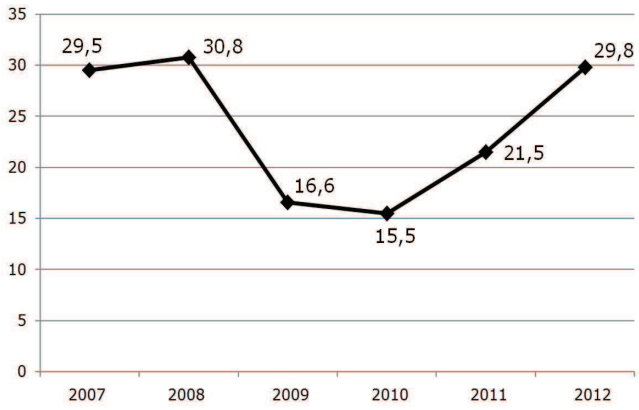
The Eurobarometer data on Latvia's population satisfaction with life show that during the crisis this indicator reduced considerably (Figure 2). Also the Happiness index of Latvia's population outlined changes of the value exactly during years of the crisis; the index was estimated by the research centre SKDS, and it was calculated on basis of Latvia's population answers to the question 'Do you feel happy in general?', and which can be within the limits from -100 to +100 (Figure 3).

The data of Figure 2 allow concluding that in 2011 the specific weight of Latvia's inhabitants who were satisfied with their life decreased a little in comparison with 2010; though, already the first economic revitalisation signs



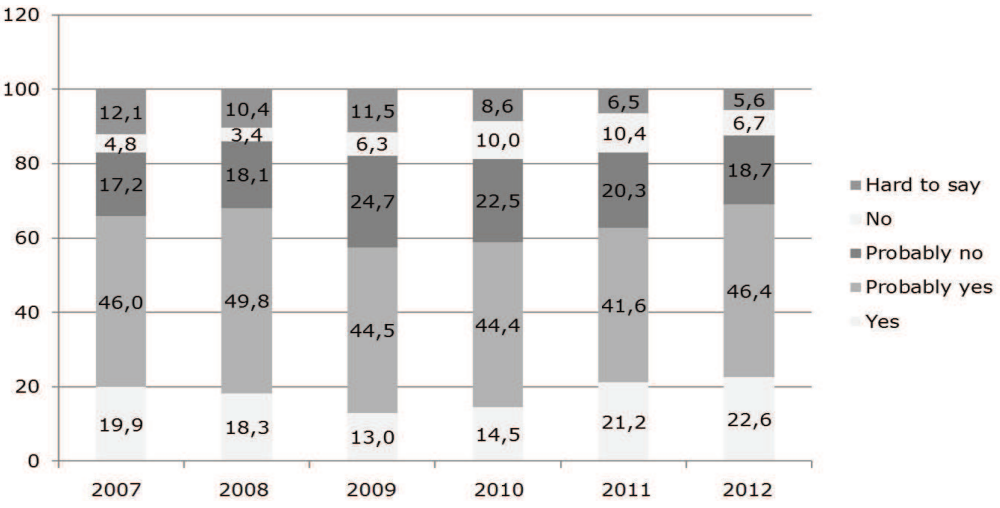
Source: author's construction based on Eurobarometer 2007a,b, 2008a,b, 2009a,b, 2010a,b, 2011a,b, 2012

Fig. 2. **Trends in life satisfaction of Latvia's inhabitants (% of total inhabitants)**



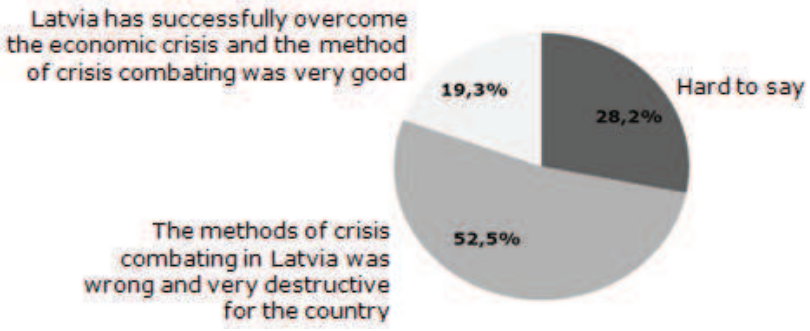
Source: author's construction based on SKDS 2012

Fig. 3. **Dynamics of the value of the Happiness index in Latvia**



Source: SKDS 2012a

Fig. 4. **Level of happiness of Latvia's inhabitants, when answering the question "Do you feel happy in general?" (total inhabitants, %)**



Source: SKDS 2012b, author's interpretation

Fig. 5. **Evaluation of the methods of crisis combating from the point of view of inhabitants of Latvia (total inhabitants, %)**

were observed at that time. On the contrary, the lowest value of the happiness index was reached in 2010, and later it started to increase gradually (Figure 3). This difference is explained by the fact that the economic well-being influences people's life satisfaction more than the feeling of happiness, because satisfaction with life is more sensitive to changes of the economic conditions. Happiness is an immediately gained feeling; it is directly related with a people group's solidarity, religiosity, and national pride (Inglehart, Foa, Peterson, Welzel, 2008). The fastest recovery and balance of Latvia's economy could be observed during 2011 – including an increase of export amounts, a slight decrease of unemployment rates, and budget income increase. Data of the surveys conducted by the Eurobarometer in Latvia in May 2012 prove that only in the first half of 2012 the pre-crisis threshold (66%) of the inhabitants' life satisfaction was overcome, which was 3% higher than the result of the first half of 2008. In addition, the research centre of SKDS shows that the economic rates of 2008 were only achieved at the beginning of 2012, i.e. 69% of Latvia's population reported as being happy (Figure 4).

In May 2012, in the survey conducted amongst inhabitants of Latvia on the issue how successfully Latvia had overcome the economic crisis and how successful the chosen methods for crisis combatting had been, the research centre SKDS got the following results (Figure 5).

Results of the survey show that 52.5% of inhabitants believe that the way out of the crisis chosen by the Latvian government was wrong and very destructive for the country. Only every fifth inhabitant (19.3%) thinks that Latvia has overcome the crisis very successfully and the chosen method was very good.

Conclusions

1. In 2008-2010, when implementing the 'internal devaluation' policy for combating the economic crisis, international mass media named Latvia an example of successful macroeconomic policy. Some world famous economists affirm that Latvia did not implement the internal devaluation policy as such, rather, that the economic recovery resulted from the government not adopting fiscal tightening for 2010 as well as an expansionary monetary policy caused by rising inflation. Economists of the International Monetary Fund in their survey drew a conclusion that the increase of the government's expenditure during the economic crisis could have been an efficient tool for stabilisation of the economy. However, the government of Latvia, taking the decision about the implementation of the internal devaluation policy, was influenced by the International Monetary Fund, and Swedish and other European banks.
2. Objective consequences of the economic crisis: from 2007 to 2010, the GDP decreased by 21.2%, the rate of unemployment grew up to 18.7%, employment reduced by 15.9%, the number of people who emigrated from the country reached 80,000 people, the real salary costs decreased by 26.4%, the poverty risk index grew up to 10.2%, and the inhabitants' financial assets decreased by 8.5%.
3. Influence of the economic crisis on the inhabitants' subjective well-being: according to the Eurobarometer data, the situation has dramatically affected population's satisfaction with life and over one and a half year it dropped by 5% and reached a low of 58% in 2009. The Eurobarometer data show that only in the first half of 2012, the pre-crisis threshold of the inhabitants' life satisfaction was overcome, reaching 66%; yet, the research centre SKDS shows that the economic rates of 2008 were only achieved in the beginning of 2012, i.e. 69% of Latvia's population reported as being happy.
4. The author of the article believes that the situation Latvia has gone through, when getting out of the crisis, cannot definitely be considered Latvia's success story, which is widely advertised in mass media. World famous economists, when analysing methods of combatting the economic crisis in Latvia, drew a conclusion that there could have been 'softer' possibilities for economy recovery. Moreover, using other tools for stabilising economy, the crisis period could have been shorter. Also according to the SKDS data, 52.5% of Latvia's inhabitants think that the Latvian government's chosen methods for struggling with the crisis were wrong and destructive for the country.
5. However, the author cannot completely disclaim some known achievements: in 2011, with dynamic recovery of economy, already in the first half of 2012, Latvia's population evaluation of subjective well-being achieved the pre-crisis level, indicating

that despite not a very humane policy of combating the economic crisis, inhabitants of Latvia were able to go through it and are facing the future hopefully.

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SCIENTIA VINCES
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PROCESSES OF CONVERGENCE/DIVERGENCE OF LABOUR PRODUCTIVITY IN AGRICULTURE OF SELECTED REGIONALTRADE AGREEMENTS[1]

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Abstract. The main feature of the contemporary world economy and international relations is a proliferation of regional trade agreements. One of economic reasons to become a member of regional trade agreements is improvement of economic efficiency and welfare in integrating countries. Therefore, the membership in a regional trade agreement can influence also agricultural productivity of the member countries assuming that the convergence process accompanying the regional integration can occur. The main aim of this paper is to identify if there is convergence or divergence process in the agricultural labour productivity within selected regional trade agreements. Six regional trade agreements – the CACM, the CAN, the EAC, the EFTA, MERCOSUR, and the NAFTA – are analysed. The analysis is based on data: the value added in agriculture per worker and employment in the sector of agriculture during 1980-2010 derived from the World Development Indicators database. The author calculated the coefficient σ convergence for each regional trade agreement and performed evaluation of the convergence process. The research reveals that it cannot be clearly stated that membership in the analysed regional trade agreements influenced the processes of convergence of agricultural labour productivity among the members. The tendencies to eliminate spatial disparities were noticeable only in relation to the EFTA and MERCOSUR countries. There was an increase in agricultural labour productivity in the majority of member countries of the CACM, the CAN, the EAC, and the NAFTA. However, the pace of this process varied from country to country, thus disproportions in labour productivity in agriculture within a particular grouping were often increasing.
Key words:agricultural labour productivity, convergence,regional trade agreement
JEL code: F15, R10, R11, Q12

Introduction

Proliferation of regional trade agreements is the main feature of the contemporary world economy and international relations. On 15 January 2013, there was 319 regional trade agreements in force notified by the GATT/WTO. The countries create or associate to the existing groupings because of economic and non-economic reasons. One of economic reasons is improvement of economic efficiency and welfare in the integrating countries, however the achievement of these goals is determined by structural, technological, and economic factors (Misala J., 2001). Accordingly, building of regional trade groupings can be important in the context of agriculture. The agricultural sector is significant particularly for the developing countries because of considerable agriculture share in the GDP, its positive contribution to economic development, and improvement of the food security level (World Bank, 2008).The membership in a regional trade agreement can influence agricultural growth in member countries (Czternasty W., Smedzik K. 2009, Grzelak A., Brelik A. 2011) assuming that the convergence process accompanying the regional integration can occur. The concept of convergence covers the problem of assessment of the scale and the reasons for inter-regional differences as well. This concept is used in many scientific fields, inter alia, biological, economic, humanistic, or technical ones. Despite the fact that convergence has a different significance in each of these fields, their common denominator is identifying the convergence with the process of becoming similar to each other. In social sciences, this concept usually refers to the categories such as the GDP *per capita*, level of household

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income, indicators referring to the labour market, the level of technological advance, and the capacity to create innovations etc. The process of divergence, which is opposite to convergence, is identified with a multidirectional, divergent development that causes the lack of cohesion in the level of regional development (Fiedor B., Kociszewski K. 2010).

Assuming that the convergence process comes with the regional trading groups, it is interesting to analyse how it influences the agriculture in the member countries. Agricultural output and agricultural income *per capita* are determined by t*he productivity of labour resources. Moreover, effective use of production factors, including labour, determines* the competitiveness of agriculture at international level (Poczta 2003, Poczta et al., 2012). Apart from *socio-economic system,* economic policy and possibility of to influence the international economic environment, the most important factors determining the competitive capacity of the economy and its sectors include the size, quality, and structure of productive resources and efficiency of their use [Grzelak A. 2008, Czyzewski A., Kulyk P., 2010]. The main goal of this paper is to identify if the *spatial discrepancies* in agricultural labour productivity among countries within the selected regional trade agreements are reducing or increasing. In other words, identify if there is a convergence or a divergence process in the agricultural labour productivity in groupings. The member countries of six regional trade agreements – the CACM, the CAN, the EAC, the EFTA, MERCOSUR, and the NAFTA[2] – are analysed. The analysis is based on data: the value added in agriculture per worker and employment in the sector of agriculture derived from the World Development Indicators database. The author calculated the coefficient σ convergence for each regional trade agreement [3] and performed evaluation of the convergence process.

Research results and discussion

1. Methodical approac

The concept of convergence emphasized by economic historians, such as Kuznets (1955), Gerschenkron (1962) and Gomulka (1986). They all note that backward countries tend to grow faster than rich countries. This conception derives from the standard neoclassical theory, as this is formulated by Solow(1956). In neoclassical growth models, the regions will converge towards a common ”steady-state” if the growth rate of technology, investment, and labour force are identical across the regions. The growth rate *per capita* tends to be inversely related to the starting level of output or income *per capita*– the poor economies grow faster than rich ones. This concept is also described by J. Tinbergen, who is considered to be the progenitor of the convergence theory in economic sciences. Tinbergen noted that economic cooperation between the developed and developing countries (on certain conditions such as an active participation in the global economy or possessing the capital that enables the initiation of economic growth) will lead to the equalization of living conditions in those countries (Fiedor B., Kociszewski K. 2010). *Early theories of regional development are based on neoclassical theories of international trade and economic growth.* Those theories emphasized that over time, the disparities in labour cost and in other factors will be decreasing between the regions, and they will exhibit a tendency to converge. There are differences between national and regional economies, since the latter are far more open than national economies, within which they are situated. Regional economies are usually more developed than national economies, since there is a duty-free, inter-regional and international trade as well as similar culture and customs. The great majority of theories derived from the understanding of tendencies in home economies may be increasingly applied to the regions in the countries located in regional trade groupings (Lazniewska E., et al., 2011)

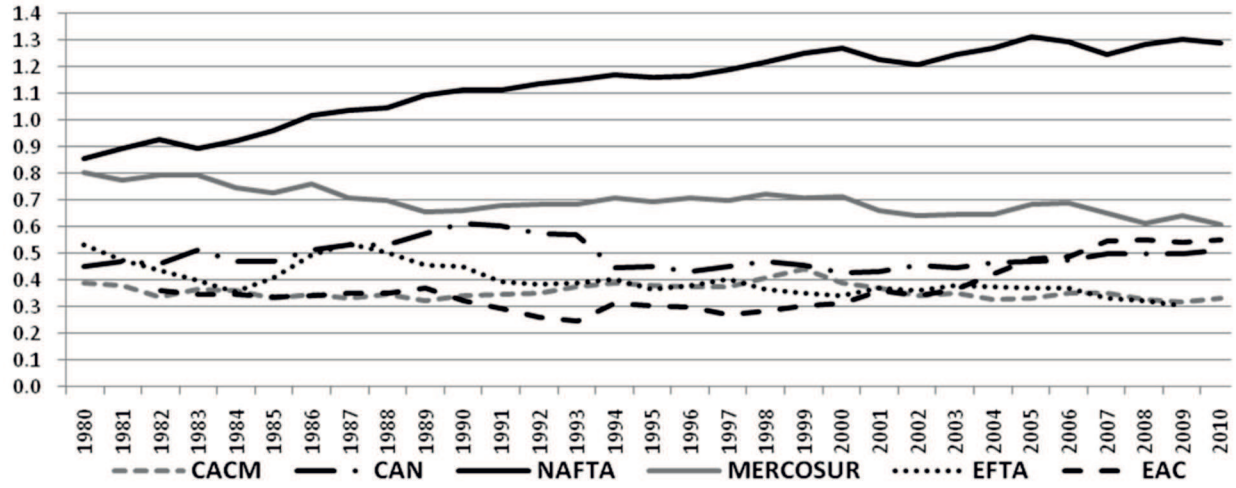
In the following years, there was a dynamic development of research on convergence, which is reflected in numerous interpretations of this concept (Sala-i-Martin X., 1996, Boldrin M., Canova F., 2001). The analysis of the literature on convergence shows that there are two basic concepts: *beta* (β) convergence and *sigma* (σ) convergence. The first concept assumes that the countries with lower initial income level are characterized by faster growth pace than richer countries, which in turn leads to the equalization of income level *per capita* among economies analysed. *Beta* convergence can be divided into unconditional (absolute) or conditional convergence. Absolute *beta* convergence assumes that all economies aim for the same income level *per capita,* whereas the idea of conditional *beta* convergence is that each economy strives for its own prosperity that depends on its internal characteristics. *Sigma* convergence, on the other hand, indicates scattering (dispersion) of the examined characteristic in the group of economies analysed (countries, regions). Depending on the direction of sigma convergence, the indicators changing the convergence or the divergence process can be identified within the considered period. The standard deviation of the log of agriculture value added per worker has been used in order to verify σ convergence, It is described by the formula (Fiedor B., Kociszewski K., 2010):

$$\sigma(t) = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(\log y_i(t) - \overline{y}(t)^2}$$

where:

[2] Throughoutanalysed period the membership of each grouping is fixed in order to avoid distortion caused by accession. CACM (Central American Common Market) includes: Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua. CAN (Andean Community) embraces Bolivia, Colombia, Ecuador and Peru. EAC (East African Community) includes” Burundi, Kenya, Uganda, Tanzania and Rwanda. EFTA (European Free Trade Association). members are: Iceland, Liechtenstein, Norway, Switzerland. MERCOSUR(Mercado Comun del Cono Sur) members are: Argentina, Brazil, Paraguay, Uruguay. NAFTA (North American Free Trade Agreement)includes: Canada, Mexico and United States.

[3] The empirical analysis of convergence in agriculture have been proposed by, inter alia, Soares and Ronco (2000), Liu et al. (2008), Alexiadis (2010) Esposti (2011), Grzelak, A., Brelik, A. (2011),Baer-Nawrocka A. Markiewicz N. (2012).



Source: authors' construction based on the World Development Indicators

Fig. 1**. The level of σ convergence coefficient of agriculture value added per worker in selected regional trade agreements in 1980-2010**

$$\bar{y}(t) = \frac{1}{n}\sum_{i=1}^{n} \log y_i(t)$$

$\sigma(t)$ - dispersion of agriculture value added per worker in the group of all regional trade agreements in the year *t*

$y_i(t)$ - agriculture value added per worker in the regional trade agreement *i* in the period *t*

$\bar{y}(t)$ - average agriculture value added per worker in the period *t.*

The decreasing value of coefficient σ in the period considered indicates reducing *disproportions* in the level of characteristics analysed, so there is a convergence process. In the opposite situation, when *sigma* indicator increases, the divergence occurs (Barro R., Sala-i-Martin X., 1992, Malaga K., 2004)

In order to assess changes of number of the employed in agriculture and agriculture value added per worker observed in particular countries, the formula to calculate the average pace of changes on the basis of all *values of characteristic* has been applied in the research (Wysocki F., Lira J., 2003).

2. Sigma convergence coefficient in selected grouping

The data on the average labour productivity in particular countries among the analysed trade associations in the period from 1980 until 2010 are presented in Table 1, and Figure 1 shows *sigma* coefficient, which has been calculated on this basis. The growth of *sigma* coefficient can be noticed among groupings such as the NAFTA and the EAC, which indicates the growth of spatial *discrepancies between the countries of these groupings in terms of labour productivity in agriculture.* In case of the NAFTA, it is caused by the growing differences in labour productivity among Canada, the USA, and Mexico. The growth of labour productivity occurred in all above-mentioned countries, however it was far more considerable in Canada and the USA than in Mexico. It was caused not only by the growth of agricultural value added, but also by the decreasing number of the employed in agricultural sectors of Canada and the USA.. It resulted in growing differences in labour productivity when compared with agriculture in Mexico, where the number of people employed increased. In the 80s, the value added in agriculture per worker in the agricultural sector of Mexico was eight times lower than in agricultural sectors of Canada and the USA, whereas within the years 2000-2010, this difference was fourteen times bigger. Therefore, it can be stated that in that case the process of divergence occurred. At the same time, labour productivity levels in Canada and America agriculture show the catching up trend that may indicate the process of convergence.

The process of *sigma* divergence in terms of labour productivity in agriculture is especially visible from the mid 90s in the countries forming the EAC. In these countries, labour productivity is extremely low when compared to countries from other analysed groupings. Moreover, there is just a slight growth in labour productivity in the period concerned or its decline in case of Kenya and Burundi. In the majority of these countries, the increase in agricultural *value added was accompanied by an increase in the number of workers employed in agricultural sector, that is reflected in* a positive rate of change*. A very low labour productivity is determined by a large share of employment in agriculture of these countries, low capital endowment of agricultural worker as well as difficult natural conditions.*

Although the *convergence processes are limited, they can be noticed in the* EFTA and MERCOSUR groupings. The EFTA consists of highly developed countries with high GDP *per capita* and well developed agricultural sector. In the period concerned, *labour productivity was increasing among the countries constituting both groupings.* Among the the EFTA members the growth

Table 1

Annual average of agriculture value added per worker and its changes in the selected regional trade agreements in 1980-2010 (constant 2000 USD; %)

Regional trade agreements	Annual average (constant 2000 USD)			Change 2000-2010/ 1980-1989 (%)
	1980-1989	1990-1999	2000-2010	
CACM				
Costa Rica	2 498.8	3 581.0	4 820.7	193
El Salvador	1 765.9	1 792.1	2 274.8	129
Guatemala	2 213.8	2 592.0	2 780.2	126
Honduras	1 008.8	1 279.7	1 754.1	174
Nicaragua	.	1 532.8	2 251.6	.
CAN				
Bolivia	679.3	719.4	721.8	106
Colombia	2 463.9	2 764.7	2 662.5	108
Ecuador	1 769.0	1 395.0	1 735.1	98
Peru	990.6	997.0	1 382.8	140
EAC				
Burundi	164.7	146.9	102.7	62
Kenya	399.9	348.1	354.7	89
Uganda	202.1	191.8	212.3	105
Tanzania	.	220.8	265.1	.
Rwanda	186.1	195.9	211.1	113
EFTA				
Iceland	44 201.2	47 711.4	54 442.8	123
Liechtenstein	.	.	.	.
Norway	14 535.8	24 134.1	35 425.7	244
Switzerland	22 232.5	19 484.3	23 121.4	104
MERCOSUR				
Argentina	6 633.2	7 933.0	10 476.1	158
Brazil	1 325.5	1 863.5	3 214.3	242
Paraguay	1 389.5	1 749.6	2 105.6	152
Uruguay	5 348.3	6 601.7	7 931.1	148
NAFTA				
Canada	18 990.5	32 741.0	44 312.9	233
Mexico	2 225.4	2 333.8	2 920.9	131
United States	15 813.2	23 185.6	42 652.5	270

Source: authors' calculations based on World Development Indicators database.

was more determined by the decrease in the number of *agriculture employees rather than by the increase in agricultural* value added (except Switzerland). Among MERCOSUR countries, on the other hand, *an increase in agricultural* value added was larger but it was usually accompanied (except in Brazil) by a slightly increasing involvement of labour force in the *production process.* In case of both groupings, it can be stated that countries with a relatively lower agricultural *labour productivity in a particular grouping are gradually becoming similar to the countries with higher productivity of labour factor in agriculture. Therefore, it can be concluded* that there was the *sigma convergence tendency in terms of agricultural labour productivity among the* countries of the EFTA and MERCOSUR in the time considered.

In the CACM and CAN countries, in turn, there were no considerable changes in the convergence indicator level, which shows that disproportions in agricultural labour productivity among these countries are not increasing nor decreasing. Therefore, the tendency to maintain differentiations was stable in the time considered. In the majority of countries that belong to these regional trade agreements, there was an increase in agricultural value added per worker, although greater changes in

Table 2

Changes of agriculture value added and employment[4] in agricultural sector in the selected regional trade agreements in 1980-2010 (%)

Regional trade agreements	Agricultural value added				Employment in agricultural sector			
	Annual average changes			Changes 2000-2010/ 1980-1989	Annual average changes			Changes 2000-2010/ 1980-1989
	1980-1989	1990-1999	2000-2010		1980-1989	1990-1999	2000-2010	
CACM								
Costa Rica	0.02	0.04	0.02	214.5	0.01	0.00	0.00	111.4
El Salvador	-0.03	0.01	0.02	125.5	0.00	0.01	-0.01	97.9
Guatemala	0.00	0.02	0.02	172.8	0.02	0.00	0.03	137.4
Honduras	0.02	0.02	0.03	180.0	0.00	0.01	-0.01	104.0
Nicaragua	.	.	0.02	.	.	.	-0.01	.
CAN								
Bolivia	0.00	0.03	0.03	173.8	0.01	0.02	0.02	163.3
Colombia	0.02	-0.02	0.02	111.0	0.00	0.01	0.00	102.7
Ecuador	0.03	-0.07	0.04	118.9	0.00	0.01	0.00	121.6
Peru	0.03	0.03	0.03	204.3	0.02	0.02	0.01	146.2
EAC								
Burundi	0.03	-0.01	-0.01	92.3	0.03	0.01	0.03	150.3
Kenya	0.03	0.00	0.03	164.4	0.03	0.03	0.02	185.2
Uganda	.	0.03	0.03	188.7	.	0.01	.	.
Tanzania	.	0.03	0.04	.	.	0.02	0.02	.
Rwanda	0.01	0.00	0.05	146.7	.	.	.	.
EFTA								
Iceland	0.01	-0.01	0.00	111.9	0.02	-0.01	-0.01	91.2
Liechtenstein	.	.	.	.	.	.	.	.
Norway	0.01	0.04	0.02	154.7	-0.01	-0.02	-0.02	62.3
Switzerland	-0.03	-0.02	-0.01	83.8	0.00	-0.01	-0.02	79.7
MERCOSUR								
Argentina	0.01	0.03	0.02	163.02	0.01	0.00	0.00	103.3
Brazil	0.03	0.02	0.04	190.09	-0.01	0.00	-0.01	78.8
Paraguay	0.03	0.03	0.05	216.29	0.02	0.02	0.01	142.2
Uruguay	-0.01	0.04	0.01	148.87	0.00	0.01	-0.01	100.5
NAFTA								
Canada	0.02	0.00	0.00	125.35	-0.03	-0.02	-0.01	52.6
Mexico	0.01	0.01	0.02	134.64	0.01	0.14	-0.01	102.8
United States	0.04	0.02	0.01	194.62	0.00	0.11	-0.02	72.7

Source: authors' calculations based on the World Development Indicators database.

this matter occurred in the CACM countries. Despite the positive changes, agriculture in these countries is still characterized by a low labour productivity. It should be noted that an increase in agricultural value added was simultaneous with an increase in the number of people employed in agricultural sector (positive rate of change). Quite a considerable growth in labour force potential occurred especially in agriculture of the CAN countries – in extreme cases this growth reached 50-60% when compared to the beginning of the time considered.

Conclusions

1. On the basis of the conducted analyses it cannot be clearly stated that membership in regional trade agreements influenced the processes of convergence of labour productivity in agriculture among countries constituting a particular grouping. The tendencies to eliminate spatial disparities between countries in terms of labour productivity, expressed as agricultural value added per worker, were noticeable only in relation to the EFTA and MERCOSUR countries.

[4] Employment by sections and divisions-employed in agriculture, hunting, and forestry.

Moreover, *beta* convergence is also visible in case of both groupings, which is reflected in a faster growth in agricultural labour productivity in countries with lower initial level of this factor.

2. There is an increase in agricultural labour productivity in the majority of member countries of the CACM, the CAN, the EAC and the NAFTA. However, the pace of this process varied from country to country, thus disproportions in labour productivity in agriculture within a particular grouping were often increasing. The changes rate in this matter differs, which is a consequence of considerable disparities in the level of economic development, socio-economic policy, and, accordingly, agricultural development among the members of a particular grouping, both in the production structure as well as in an access to the means of production and the possibility to replace labour work with capital.
3. The main reason of growing agricultural labour productivity within the groupings comprising highly developed countries was mainly an increase in agricultural value added that was accompanied by the decrease in the number of workers in agricultural sector. However, the changes in agricultural value added were faster than changes in agricultural labor resources. At the same time, it should be noted that these changes were already taking place when there was a high initial level of labour productivity in agriculture. A reverse phenomenon can be observed in less developed countries, namely an increase in the number of agriculture employees. As a result, despite an increase in agricultural value added, the growth in labour productivity was low or even decreased. Relatively low productivity of labour resources prevailing in these countries proves the need for further changes in this matter. It is especially vital in the context of agricultural competitiveness of these countries in the international market.

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SITUATION IN THE AGRICULTURAL REGIONS OF THE EU DEPENDING ON THEIR LEVEL OF DEVELOPMENT[1]

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Abstract. The purpose of this article is to consider the interdependence between the level of regional development and agricultural development. First, the authors distinguished economic and social factors that were important for the level of regional development. Then the authors indicated the determinants playing a key role in the development of regions concentrated most similar to each class. Next, the authors researched relationship between disposable income of households and the family farm income. The authors noticed significant differences between the regions of newly acceded countries (EU-10 in 2004) and the "old" EU countries.
Key words: economic and social development, regions EU-25, diversity.
JEL code: R10, R11, R58, Q10

Introduction

The article is based on assessing the level of regional development of the EU-25[3], separated according to the FADN methodology, which gives a division of the 122 research objects into classes. This assessment was made synthetically and on two levels - economic and social.[4] A method involving the reduction of space by analysing multitrait principal components based on separation of regions (made in earlier studies) connected with the concentration of objects (regions) by the most similar to each of the analysed characteristics of the total (Ward's cluster analysis[5]) was used in the analysis of factors influencing the different levels of regional development. The first class could include the regions of Scandinavia, the UK, Ireland, Germany, and Austria; the second - France; the third - Poland, the Czech Republic, Slovakia, and Hungary; the fourth - Lithuania, Latvia, Estonia, Portugal, Greece, and Spain; and the fifth - Italy.

Material capital, and innovation and technology were assigned to the economic factors which have an influence on the development level of regions; while human and social capital - to the social factors. Each of the factors is the result of several other variables that describe it. Scientific problem of this study is first to identify the relationship between the pro-growth factors of distinguished classes in clusters and GDP and second – to show the level of regional development consistent with the development of agriculture in the analysed regions of the EU-25.

Factors of growth in theory

Evaluation of the regions mentioned above was carried out according to four criteria. First of them was the material capital (MC) which included:

— disposable income of households (in purchasing power parity based on the final consumption – this is an important feature due to the fact that the level of final consumption is closely linked with the level of final demand, and the last one is correlated positively with the production capacity of the economy, including regional and produced value added);
— GDP growth in the region;
— structure of gross fixed assets (divided by degree of their attraction to the sector: services, industry, agriculture);
— employment structure of the population (which includes the following occupational groups: farmers and fishermen, operating machinery and mechanics, artisans and merchants, vendors of goods and services, officials, technicians, skilled workers/professionals, judicial staff, officials and senior managers, military officers, and unskilled workers; it may also show the nature of the region's economy).

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[3] The research was done based on the available statistical data of the Eurostat till 2007 (http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=REF_TB_regional&root=REF_TB_regional/t_reg/t_reg_eco/tgs00026) 20.08.2009
[4] More information about this classification may be found in the article of A. Matuszczak, *Socio-economic Determinants of Regional Development in the EU-25*, Rzeszow 2012 (in press)
[5] Ward's cluster analyses considered regional features connected with land, employment and capital factor in the average agricultural farm of the region. The analysis led to separating of 122 regions of the EU-25 into classes according to the method of agglomeration classification (Stanisz, 2007). The studies objects are arranged hierarchically and dividend into five classes (Matuszczak, 2010a).

Table 1

Regression equations describing the impact of factors of socio-economic level of the development of agricultural regions of the EU-25

Class	Equation	Coefficient of determination R^2
1	$GDP_{per\ capita}$ = 24 906.3 – 3277.5*HR	R^2 = 36%
2	$GDP_{per\ capita}$ = 20 893 + 959*HR	R^2 = 30%
3	$GDP_{per\ capita}$ = 10 852 – 1875*MC – 2864.4*IT + 1286*HR	R^2 = 94%
4	$GDP_{per\ capita}$ = 20 832 + 3476*MK – 5370*IT	R^2 = 35%
5	$GDP_{per\ capita}$ = 22 102 – 2722* IT + 2997*SC	R^2 = 93%

Source: authors' calculations

However, the next factor – the innovation and technology (IT) feature outlines the following characteristics:

— expenditure on research and development (measured by the share of GDP);
— employment in the sectors of high technology (in high-tech manufacturing industries and high-tech services);
— HRST (human resources in science and technology, understood as the share of professionally active persons aged 15-74 years who have either higher education - completed the third phase of training - or are employed in the position where such qualification is required; these people are perceived as creators of innovation and progress);
— number of people having access to the Internet at home (no doubt reflecting technological development of the region);
— number of people who have never used a computer.

According to the modern concepts of regional development, the quality of human resources (HR) may be indicated consistent with the most important determinants of socio-economic development. The factors forming human capital can include many features; yet the following ones were enumerated for the purposes of this study:

— education (the higher educated residents, the greater their wealth and opportunities for the growth and development of the country or region);
— number of students (measured in a population of people aged 20-24, may be regarded as a measure of regional potential which will be the driving force for the economy for several years);
— number of primary care physicians (per correct number of residents);
— number of hospital beds (feature is very similar to the number of primary care physicians);
— number of road traffic victims;
— mortality rate (properly re-measured, it can be assumed that the higher the ratio of higher drain of human capital).

The last factor – social capital (SC) – is a relatively new category having an impact on regional development. Literature assumes that it includes the norms, values, and social activity and creates conditions for the development of entrepreneurship (Churski, Perdal 2008/4). Therefore, social capital in its operationalisation is considered as a professional and social activity of people living in a region. Meanwhile, for the purpose of this analysis it was assumed that it creates:

— employment (in the age group of 15-64 years, and separately in the group of 55-64 years);
— level of unemployment and long-term unemployed;
— average number of inhabitants in a region and population density.

Diversity of regional development in the EU-25

Diversity of regional development in the EU-25 is associated with the level of income available by residents of the region, which is a major hallmark of the region's wealth and opportunities. Hence, in assessing development diversification of agricultural regions, the level of GDP per capita was dependent on the four highlighted above factors (main components).[6] Multiple regression models (stepwise regression) for each class of regions (Table 1) were estimated searching for factors having the greatest impact.

As might be supposed, the most important factor enhancing the GDP growth in most regions of "the old" EU (regions of France, Germany, British, Sweden, Finland, Belgium, Denmark, Austria, the Netherlands, and Ireland) is human capital. This corresponds with the latest theories where the most important factor of economic growth is just the human capital. Its high quality coupled with financial capital determines innovation of the economy, and is conducive to increasing wealth of the inhabitants.

A model referring to the regions of Poland, Hungary, Slovakia and the Czech Republic, describing almost perfectly dependence of the level of development on the level of human capital, material capital and economic innovation, is also very interesting. Similar, high measure of goodness of fit of the model is characterised by the regions of Italy where the degree of regional development depends primarily on the level

[6] The method of principal components analysis gives the possibility to create new variables (components) which can then be treated as independent variables explaining the variation in the dependent variable. This is useful when independent variables taken into the analysis are highly correlated with each other, or the number of these variables is equal to or exceeds the number of test cases and calls for their reduction (Stanisz, 2007). A similar analysis was conducted by Churski P., and Perdal R. examining the impact of the extracted principal components on the level of GDP per capita in the region (Churski, Perdal, 2008).

of innovation and social capital. This may be due to the fact that the values of variables included in these two traits may show the greatest differentiation in the examined cluster.

Interdependence between the level of regional development and agricultural development

The conducted analysis of the differences in the economic and social development of regions of the EU-25 outlined a significantly divided Europe. At the same time, this observation entitled the verification of another hypothesis, namely, finding that the overall development of the region (primarily measured by the income level determined by various factors discussed above) positively affects the development of agriculture. The theory of agricultural economics provides considerations on the impact of proximal and distal environment for agricultural development (Czyzewski, 2007 and Czternasty, Czyzewski, 2007), measured by income level even from the family farm. Naturally, discussion is this measure but if one assumes that the purpose of the entity is the performance of the necessities of life, then consequently raising the level of life is the most common way to achieve this goal through the generation of income on the appropriate level.

Several independent variables adopted for the analysis characterise the state of socio-economic development of a region and the variables on the agricultural sector[7] to which these factors may have an impact. The strongest, statistically significant and positive correlation identified two variables, namely, income from the family farm and disposable income of households (Figure 1). It shall be born in mind that this relationship is much stronger in the regions of the third class – newly admitted ones to the EU-15 (Poland, Hungary, the Czech republic, and Slovakia) where the correlation is nearly 75%, while this compound is strongly weaker in the regions of the "old" EU due to a higher observed correlation (almost full) between income from the family farm and subsidies of operational activity.

Nevertheless, it can be concluded that the level of regional development goes hand in hand with profitability in the agricultural sector. However, one should be aware that the variable disposable income of household explains only ¼ of variability income from the family farm[8]. Other compounds, although statistically significant, were characterised by a correlation between medium and low.

However, interesting trends are observed - the first of them concerns the negative dependence of the GDP growth rate on the income of the family farm. This compound is known in the literature and results primarily from the right Engel. Namely, the share of spending on basic goods (including such basic agricultural commodities and food products) decreases with the increase of income. Thus, a simple request - farmers benefit from the effects of economic growth is limited. In addition, a research on the relationship between general economic boom and agricultural boom showed that it was possible to translate the general economic situation of the pulses sector to an annual delay. Specifically, this situation concerned the GDP growth and agricultural price scissors but unfortunately it was statistically insignificant. However, it was known that agriculture due to its characteristic features such as long production period, a slower return on invested capital, or dim the mobility of factors of production, is not able to adjust such size and structure of production to the changing market environment much faster. Based on the observed situation in the EU in the 1990s (after the reform of MacSharry), it can be concluded that the agri-food sector is not experienced to date (i.e. in a particular year) benefit from the economic growth (GDP) (Czyzewski, Poczta, Wawrzyniak, 2005). This relationship can be explained in other ways - the more developed regions generally experience lower economic growth but at the same time, there is relatively high agricultural income, resulting primarily from the agricultural policy which pursues the goal of providing adequate standard of living for agricultural population, primarily by increasing the individual earnings of persons employed in agriculture.

Second, the positive relationship between higher education in the region and the family farm income can be explained in two ways: first, probably a higher level of education in the region is also reflected in the higher educated farmers who thanks to their knowledge can manage their farms resulting in higher income. On the contrary, if the farms generate high returns (also for other reasons), it probably gives an opportunity, in addition to satisfying basic needs, to ensure education for family members. It is worth noting that rural areas which have undergone deep processes of change in the last dozen years face numerous challenges. Impoverishment of the rural population, high unemployment, an unfavourable structure of employment, deep quantitative and qualitative changes in agriculture, need to adapt to the new system of management, and need for multifunctional development represent the many levels of rural issues. The high level of education of the rural population may be a major factor enabling efficient and effective adaptation to the changing environmental conditions.

Conclusions

Considering the interdependence between the level of regional development and agricultural development, one can say that there is a statistically significant and relatively strong relationship between disposable income of households and the family farm income; however, it is definitely stronger in the regions of newly acceded countries (EU-10 in 2004). The pace of development of the

[7] Adopted by the following variables for analysis: the economic size of farm, labour input in total, the aggregate production, the family farm income, total costs, the balance of payments and taxes on operating activities and net investment

[8] However, one can briefly say that the agricultural income depends largely on factors of production and non-production. The regression analysis indicated quite clearly the picture of total income in the regions. Namely, the income of the family farm = 814.4 + 0.97 * Total production - Total cost of 0.98 * + 1.01 * balance of payments and taxes, with R^2=98.9%.

region (expressed in the GDP growth rate) is negatively correlated with the family farm income. This regularity provides on the one hand, the fact that the agricultural sector does not gain sufficient benefit from the economic growth; yet, on the other hand it shows clearly that more developed regions where the economic growth is inevitably lower, even at a higher level of development of the agricultural sector reflect relatively higher income. By contrast, in developed regions the growth rate of general economic is relatively higher, while the revenues generated by the agricultural sector - lower.

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IMPLEMENTATION PROBLEMS OF DEVELOPMENT STRATEGIES: CASE STUDY OF DAGDA COUNTY

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Abstract. Research of different strategical documents related to regional policy and development strategies at the state, regional or local levels allows establishing a fact that their implementation encounters many problems. The set objectives that are defined in these documents very often are not achieved. The aim of this research is to analyse potential implementation problems of county's development strategies and make proposals for successful strategy implementation mechanisms. This research is performed on the example of Dagda county, which is one of the 19 rural counties in Latgale. This study includes analysis of implementation mechanism of the strategical direction "Nature Tourism Development" defined in Dagda County Strategy. The author offers a new scheme for strategy implementation and a new management model for the implementation of one of the Development Strategy's directions – "Natural Tourism Development". The offered Strategy implementation model was developed by taking into account support systems for development of distinctive competencies. Hypothesis of this research: it is possible to implement strategy only by establishing appropriate strategy implementation mechanism taking into account the major role of human resources development. Research object: development strategies. Research subject: factors influencing the strategy implementation. To accomplish the objectives of this study, the following research methods were used: content analysis, analysis and synthesis, and logical and abstract constructive methods.
Key words: regional development, human development, strategy implementation
Jel code: R110, O15, O2

Introduction

Economic development in rural studies is closely related to theories of economic development in rural regions focusing on how rural development policy can stimulate economic growth in rural regions. Different studies illustrate the process reflecting the way, in which selected initiatives can influence the development patterns, growth of population, and quality of life in a county. Taking into account the wide changes in the external environment that influence the development patterns of each organization; it is obvious that nowadays they are based on strategic management principles. It means that each administrative unit should develop its own Development Strategy. The strategy is defined as the intention to do something, or as a project that tries to establish certain aims proceeding from the economic interests and possibilities (Evans N., Campbell D., Stonehouse G., 2010). It has also been defined as a document that consists of things to achieve and ways of implementing necessary actions to obtain the desired results.

The territory of Latvia is divided into five regions. One of them is Latgale, which is divided into 19 rural counties. Each of them has its Development Strategy. The vision, targets for achieving this vision, and strategic directions are defined in these strategies.

Implementation of the strategy is one of the most important parts in strategic management. Stavrakakis G. (Stavrakakis G.,2012) explained the implementation of *Strategy Europe 2020* as follows: measures to implement the Lisbon Strategy have not succeeded in making Europe "the most competitive knowledge-based economy in the world, capable of sustained economic growth with more and better jobs and better social cohesion". One of the principal weaknesses of the Lisbon Strategy was the absence of a clear and targeted implementation mechanism from the very beginning. Therefore, its final analysis revealed that there was achieved only a public agreement with the Lisbon Strategy, yet nothing was done to support it. Consequently, the introduction of "earmarking" when the strategy was renewed in 2005 undoubtedly enhanced the implementation mechanism.

If we deal with Latvia strategic documents related to regional policy and economics, we can establish a fact that the set objectives defined in these documents are not achieved because of implementation problems. Some examples:

The concept of Regional Development Policy (1996). The following goals defined in this document were not achieved:

— to promote the development of required infrastructure throughout Latvia taking into account regional disparities;
— to encourage changes in the economic structure by creating positive business environment in all regions of Latvia.

Regional Development Law (2002.) The following goals defined in this documents were not achieved:

— to promote and to ensure well-balanced and sustainable development taking into account the distinctions and opportunities of particular parts of Latvia and throughout it;
— to reduce disadvantaged distinctions between regions as well as maintain and develop the characteristic features and potential of the development of nature and culture environment for each territory.

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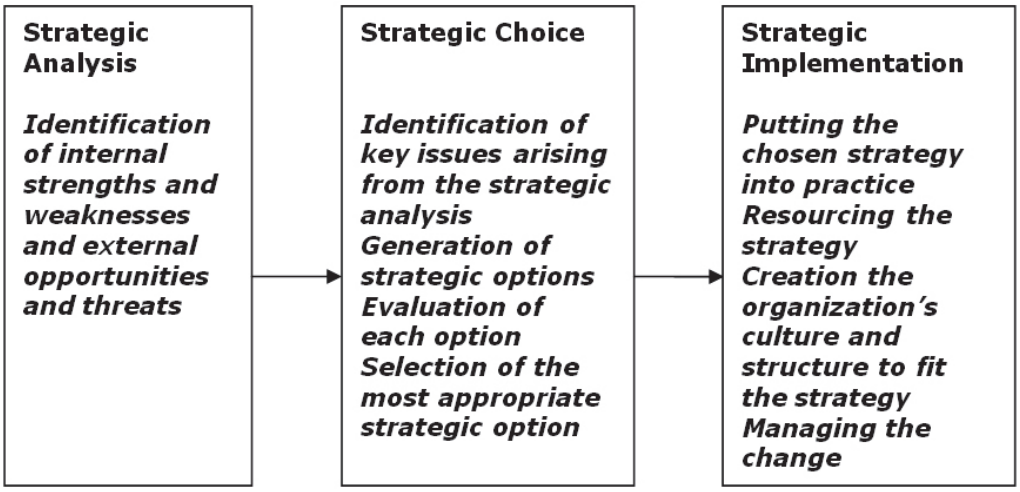


Source: Evans N., Campbel D., Stonehouse G., 2010

Fig. 1. **Implementation and the strategic process**

The author has studied five counties' development strategies in Latgale region: Rezekne, Ludza, Preili, Dagda and Balvi. The specialisation in tourism is defined in each of these strategies. This study deals with issues related to the implementation of strategies.

The aim of this research is to analyse potential implementation problems of county's development strategies and develop proposals for successful strategy implementation mechanisms.

This study was performed on the illustration of one of the rural counties in Latgale region – Dagda county, because similar problems exist in other counties, too.

To achieve this aim several **objectives** are defined:

— to interpret the theoretical aspects of the implementation of development strategies;
— to study some aspects of the Dagda County Development Strategy;
— to carry out analysis about the implementation opportunities of the strategic direction "Natural Tourism Developoment" defined in the Strategy of Dagda county.
— to create the management model to implement the strategic direction "Natural Tourism Developoment".

Hypothesis of the research: it is possible to implement the strategy only by establishing appropriate strategy implementation mechanism.

Research object: development strategies of the counties.

Research subject: factors influencing the implementation of the strategy.

To accomplish the objectives of this research, the following **research methods** were used: content analysis, analysis and synthesis, and logical and abstract constructive methods.

Research results and discussion

1. Some theoretical aspects about the implementation of development strategies

It is necessary to enable the use of available instruments that contribute to the strategy implementation. Successful strategy selection and implementation relies on the presupposition that the organization has carried out a meaningful strategic analysis and consequently is aware of its internal strengths, weaknesses, and its external opportunities and threats. The process leading to the strategy implementation is shown in Figure 1. The main parts of this process are as follows: strategic analysis, strategic choice, and strategic implementation.

Strategy implementation refers to how a company should create, use, and combine organizational structure, control systems, and culture to pursue strategies that lead to a competitive advantage and superior performance (Hill Charles W.L. , Jones G.R., 2010). Factors that are included in the process of strategy implementation are shown in Figure 2.

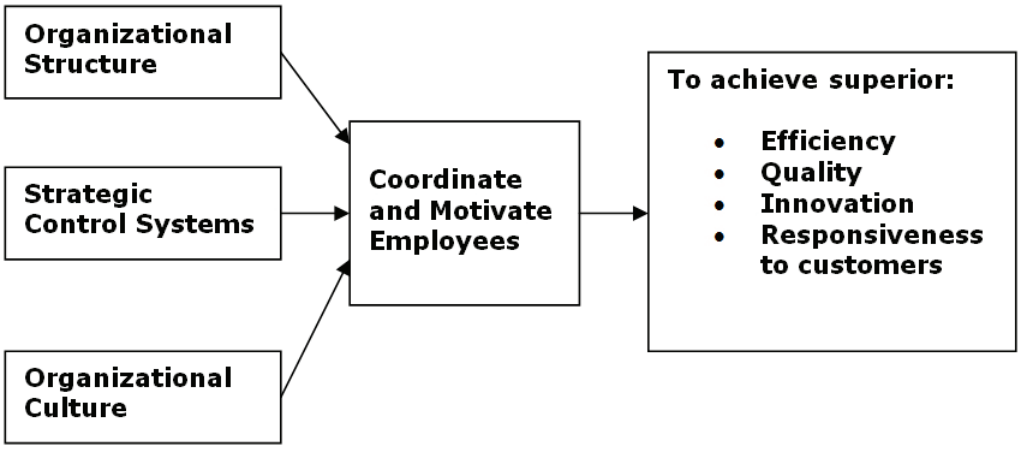
The designing of organizational structure is used to assign organizational members the tasks and connect the activities of different people and functions. Charles W.L.Hill and Gareth R.Jones (Hill Charles W.L., Jones G.R., 2010) pointed out that there are three basic choices involved when managers design an organization's structure:

1. How to group tasks into functions best to create distinctive competencies and pursue a particular strategy?
2. How to allocate authority and responsibility to these functions?
3. How to increase the level of coordination or integration between functions?

The purpose of a control system is to provide managers with: 1) a set of incentives to motivate employees to work toward increasing efficiency, quality, innovation, and responsiveness to customers; 2) specific feedback on how well an organization and its members are performing and building a competitive advantage.

Organizational culture is a specific collection of values, norms, beliefs, and attitudes shared by people and groups in an organization that control the way they interact with each other and with stakeholders outside the organization.

An important part of the strategy implementation is monitoring – taking a periodic look at "how it's going".



Source: Hill Charles W.L, Jones G.R.,2010

Fig. 2. **Implementing strategy**

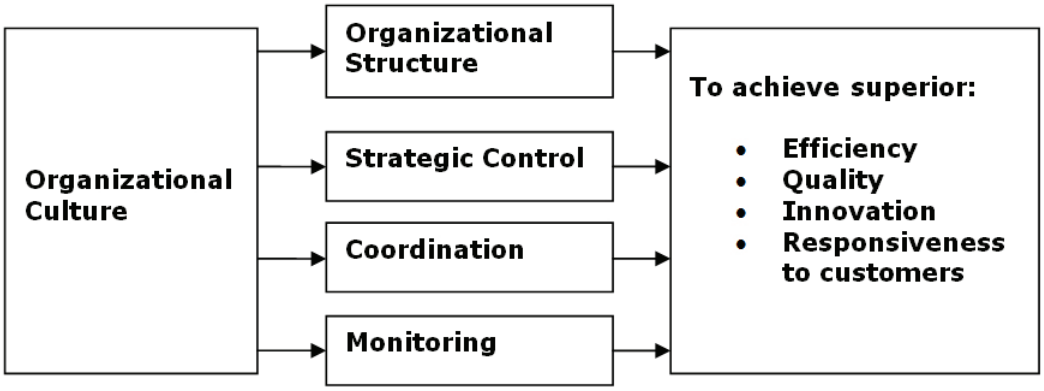


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Fig. 3. **Strategy implementation**

Monitoring of the implementation of a strategic plan is important for a number of reasons (Birnbaum B., 2010) listed below.

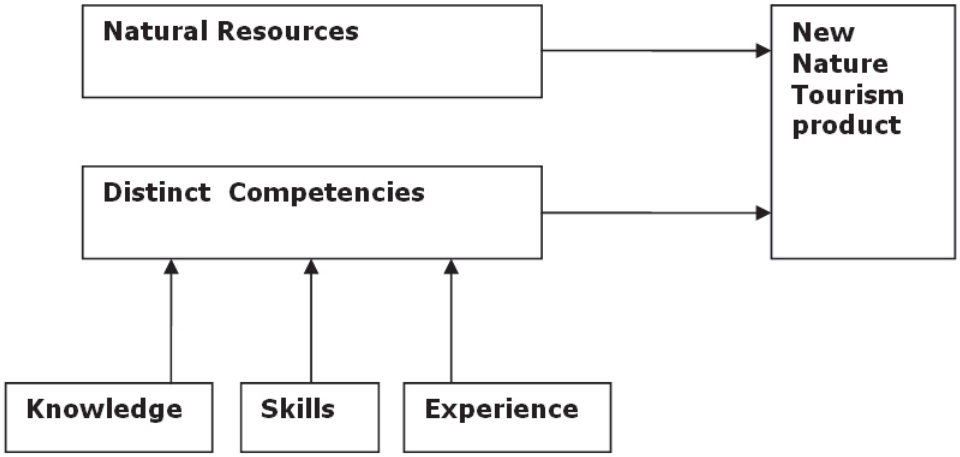
— It helps to assure that your efforts conform to the plan that you are actually performing and the action steps you intended, and that you are "on track".
— You have to be sure the results you achieve align with your quantified objectives, and that you are accomplishing what you intended to accomplish.
— Monitoring allows taking a corrective action for making the necessary changes along the way.
— Since monitoring is a part of a control process, it encourages improved performance. The fact that employees know that they will be measured stimulates them to do the job better.
— Monitoring provides an essential link between the written plan and the day-to-day operation of your business. These actions ensure that "you are really managing the business according to your plan". Monitoring the plan makes your entire planning effort a tangible reality rather than once-a-year academic exercise.

Taking into account the major role of organizational culture and monitoring in the strategy implementation process, the author offers the following strategy implementation scheme (Figure 3).

2. Some aspects of Dagda County Development Strategy

Dagda is the youngest small town in Latvia located in the South Eastern part of Latvia – Latgale. Dagda is embossomed in scenic hills and lakes. Dagda is connected with Riga (267 km), Daugavpils (89 km), Rezekne (59 km) and Kraslava (36 km) by motorways. Dagda is the centre of Dagda county. Dagda town, as the centre of frontier county, is located 267 km from the capital of Latvia – Riga. It takes six hours to get there by public bus Dagda-Riga or five hours by car. Five or six hour drive is not appropriate for such a distance. This fact does not promote development opportunities of Dagda county.

Dagda County Development Programme 2013-2019 was approved in 2012. *The vision of* Dagda county is defined in the Strategic Part of the Programme (further – Strategy) as follows: "Dagda county is a multifunctional county in Latgale region where people are active and satisfied with their life. There are well developed small



Source: Hill Charles W.L., Jones G. R.,2010

Fig. 4. **Development of a new nature tourism product**

businesses, processing agricultural products with high value added and natural tourism in this county".

There are three strategic targets, which are defined in the programme:

1. Pleasant life space (The inhabitants are active and satisfied. County's infrastructure is well organized and beautiful; well being is provided for tourists and guests as well).
2. Qualitative, diversified and accessible services.
3. Valuable economical environment.

The following specialisation of the county is defined in *Dagda County Development Programme 2013-2019*: *Nature tourism, Agriculture, and Processing of agricultural products.* This specialization is justified by SWOT analysis.

Further analysis is related to one of the county's specialisation – *Nature tourism.*

3. Analysis of the implementation opportunities of the strategic direction "Nature Tourism Developoment" defined in Dagda County Development Programme

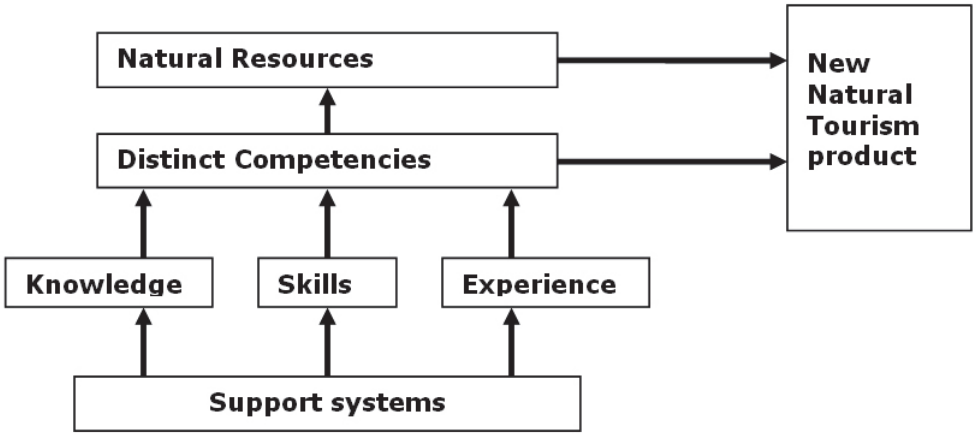
Natural resources and physical cultural resources are important assets for regional competitiveness. There is a close link between environmental resources and regional development and between the regional development strategy and regional competitive advantage. In accordance with the spatial structure of Latgale region, Dagda county is included in the tourism development territory"Ezerzeme". Taking into account rich natural resources in the county, Nature Tourism is defined as one of the county's economic specialisation (at the regional, state, and European level).

The following explanation of a developed nature tourism concept is provided in the Development Programme of Dagda County 2013-2019: "Developed nature tourism is a fully used potential of nature, which is formed by beautiful landscapes with many lakes and territory located in Razna National Park. The services of active recreation are widely accessible in Dagda county. Green tourism is very popular in the county: a lot of activities are offered for nature friendly tourists, hunters, anglers, and other ecotourists". Dagda county encompasses a wide range of nature tourism resources as Razna National Park includes many lakes, rivers, hills, forests, biodiversity, and ecosystem diversity. Cultural landscape roads P52, P60, P61, P57, and P55 via Dagda are important tourism resources for nature tourism development. They are valuable for creation of cycle tracks. Dagda county offers unique cultural heritage, rich history of crafts, and revival of crafts traditions etc.

Implementation of the strategy depends on the existing and accessible resources, on the management of strategy and its supporting structures. In order to implement a strategy successfully, an organization needs resources. Resources are the key input into the implementation of any strategy. Kamalanabhant T. and Nagaraj I. (Kamalanabhant T., Nagaraj I., 2003) underlined that human capital is a relevant source of economic growth. Human resources should have the valuable distinctive competencies with aim to create a competitive advantage and to ensure all the processes in strategic management. The development of a new nature tourism product (Hill Charles W.L., Jones G.R., 2010) is shown in Figure 4.

The major challenges for the tourism business were defined by Cooper C. et al. (Cooper C. et al., 1998): the challenges facing the tourism industry will only be met successfully by a well-educated, well-trained, bright, energetic, multi-lingual, and enterpreneurial workforce who understand the nature of tourism and have professional training. A high quality of professional human resources in tourism will allow enterprises to gain a competitive edge and deliver value added with their service.

The major role in the strategy implementation belongs to human resources. It means that successful implementation of any strategy depends on personnel knowledge, skills and competencies. Organization should ensure the required level of personnel competencies by managing this process. It is necessary to enable the use of available instruments and sources that contribute to the strategy implementation.



Source: author's construction based on Hill Charles W.L.Hill, Jones G.R., 2010

Fig. 5. **Model of implementation a new nature tourism product**

The findings of the analysis of *Dagda County Development Programme 2013-2019* are as follows: the Programme includes action plans related to each strategic direction. The action plan related to the tourism development includes development of guesthouses, farmsteads that offer different rural activities, angling service, the creation of boats and floats' routes, watching of domestic animals, food services, Latgale culinary heritage, winter tourism services, nature trails, craftsmen service, and involvement of local enthusiasts as tour guides throughout the county etc. Analysis of the action plan related to Nature Tourism shows that it does not contain any activity related to ensuring human resources development for the tourism industry. In other words, this action plan does not include any activities related to human resources management. Nevertheless, the creation of new tourism products with high competitiveness requires performers with new knowledge and new skills. It means that the successful implementation of the county strategy reguires well educated and high skilled human resources involved in the implementation of county's strategy. To develop people's knowledge, skills, and experience, the action plan should involve activities, which provide them. The creation and development of these factors build the base for qualitative and sustainable development of tourism products. Taking into account the above-mentioned facts, the following model of implementation a new nature tourism product is offered by the author in Figure 5.

Support systems (Fig.5) are related to human resources engaged in a new tourism product development. The aim of support systems is to ensure the distinct competencies of people who develop new tourism products.

Support systems should include the following:

— human resources development programme;
— partnership with tourism scientific centres, research and education institutions;
— education and training programmes for providing required qualifications for tourism specialists;
— improvement of research skills for people who are engaged in the development of tourism products.

Conclusions, proposals, recommendations

1. Organizational culture and monitoring have a very important place in the process of strategy implementation.
2. Successful implementation of county's strategy requires well educated and highly skilled human resources who are involved in the implementation of county's development strategy.
3. The analysis of counties' Development Strategies in Latgale region leads to the following findings :
   — each county has its own economic specialisation, in which among other directions tourism is also mentioned;
   — development strategies do not include human resources development and management related to counties' specialisation;
   — in the relatively poor areas of Latgale region, action plans focus more heavily on socio-economic development, promotion of employment, and quality of life.
4. The analysis of Dagda County Development Programme 2013-2019 reflects the following:
   — there is the following specialisation of the county: nature tourism, agriculture, and processing of agricultural products;
   — one of the Programme's priorities is improvement and diversification of tourism products;
   — Nature Tourism was defined as one of the specialisation directions of Dagda county;
   — the action plan of this programme does not forsee any education activities related to the tourism development;
   — the Development Strategy does not forsee improvement of county's competitiveness by human resources management related to people who are involved in the Tourism Development Programme;
   — the author offers the model for strategy implementation taking into account organizational culture and monitoring.

5. The author offers a model of implementation of a new nature tourism product taking into account support systems related to people who are involved in creation of new tourism products. Support systems should provide knowledge, skills, and experience development for these people. Support systems should ensure competitiveness of tourisms products in total.
6. Education opportunities related to tourism specialization are not offered in Dagda county. Nevertheless, tourism education opportunities are offered in Rezeknes Augstskola (50 km from Dagda) at the bachelor and master's levels. It is necessary to strengthen cooperation between Dagda county and Rezeknes Augstskola with the aim to prepare highly skilled specialists in the field of tourism for the implementation of Dagda county development strategy.
7. It is necessary to develop human resources' development plan in compliance with each county's specialization. This plan should work as a part of the support system to implement county' s development strategy.

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E-GOVERNANCE DEVELOPMENT EXTERNAL FACTORS ANALYSIS: LITHUANIAN MUNICIPALITIES ON RURAL-URBAN DIVIDE

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Abstract. E-governance is the public sector's use of information and communication technologies for communication. Therefore, the usability of public organisations websites' is a critical factor for this interaction. While a conceptual framework, technological innovation, services measurement, and management of e-governance have been studied extensively, its driving factors have not been well understood. The aim of the article is to identify the external factors that determine disparities of development level of the websites in Lithuanian rural and urban municipalities. The correlation between 22 external economic, social, geographic, cultural, and political factors and development indexes of municipalities' websites was investigated in this study. Disparities of the external factors were analysed and compared between the groups of rural, urban, and total municipalities. Results of the study show that geographic factor – a population density – has a significant impact on the development level of websites in rural municipalities (strong and weak rurality), while other external factors are not significant. The complex of external economic, social, and geographic factors has a significant impact on the development level of websites in the groups of total and urban municipalities. One cultural factor – the number of colleges and universities – has an impact on the development of websites in the group of total municipalities. Voter turnout to local councils (the political factor) did not significantly determine the development of municipal websites. The major challenge remains to not only increase the overall level of e-service usage but go for the e-communication. The internal factors analysis is required for the comprehensive evaluation of driving factors impact.
Key words: e-governance, municipal websites, urban and rural municipalities, Rutgers index, e-governance development factors.
JEL code: O180, R520

Introduction

E-governance is the public sector's use of information and communication technologies (ICT) with the aim to increase the efficiency of government operations, strengthen democracy, enhance transparency, and provide better and more versatile services to citizens and businesses. The ICT are becoming increasingly important in the communication between local governments and stakeholders, which makes the usability of municipal websites a critical factor in the government–stakeholder communication. Municipal websites may be used for the dissemination of information to stakeholders, delivery of public e-services, and participatory democracy (e-participation) implementation on the local level. Many international and national studies on the municipal websites development assessment and ranking (considering the quality of the website itself) have been carried out. However, the factors that determine the level of websites development are not sufficiently investigated yet.

The aim of the article is to identify the factors that determine disparities of Lithuanian municipal websites in urban-rural division. The tasks of the research: a) to identify the external factors of e-governance development; b) to find the correlations between the development indexes of websites and the external factors in Lithuanian municipalities; c) to compare the correlations between the development indexes of websites and the external factors in the groups of rural, urban and total municipalities; and d) to reason the external factors impact on the development of municipal websites. The research object is the external factors that have impact on the development level of municipalities' websites.

Research methods: the analysis of scientific literature, comparative and logical analysis, methods of induction and generalisation, and correlation analysis using statistical program SPSS. Information sources used in this article: the data on the development level of Lithuanian municipal websites of January 2012 estimated by the methodology of Rutgers E-Governance Performance Index and municipal data of Lithuanian Department of Statistics.

1. E-governance on the local level: identification and exploration

E-governance is the public sector's use of ICT with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective (UN, 2012). The ICT gives twenty-four hours a day, seven days a week availability interactions.

E-government encompassing information and transactions is evolving into e-governance – more complex interactions going to the agenda setting and

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policy determination (Marche and McNiven, 2003). In some cases, e-governance and the broader definitions of e-government are used synonymously, since the broader definitions of e-government underline the change of internal and external government operations through technology, electronic public services, and electronic participation (Schellong, 2009; Nordfors L. et al, 2006). However, e-government is the provision of the routine governmental information and transactions using the ICT means, and e-governance is the ICT-mediated relationship between citizens and government for communication, policy evaluation, and expression of citizen will (Marche and McNiven, 2003). Therefore, the governmental websites have evolved quickly to provide more sophisticated and complex administrative services, and furthermore, they began to expand beyond the mere delivery of government services and administrative transactions over the Internet to include functions that enable online communication between citizens and the government (Ahn, 2011).

Local governments are close to citizens and constitute for many the main representation of the government as the relationship of citizens and local authorities tends to be based on proximity concerning public services, urban development, local politics etc. Especially in countries with a federal government structure, the most public services relevant to citizens are produced, offered, and used on the local level (Schellong, 2009). Hence, on the local level it is that the impact of ICT on the relationship between governments and citizens can be most effective (UN, 2012). Therefore, the municipal websites become the main channel for interactions between governments and citizens.

While the important issues from the conceptual framework, technological innovation, services measurement, and management of e-governance have been studied extensively, its driving factors have not been well understood. The findings of such research may be used twofold: to explain the differences and to provide projections on the development of public organisations (e.g. municipalities) websites.

2. Theoretical framework for the analysis of e-governance development factors

E-governance encompasses three components expressing three main goals of the development of public organisations websites (especially municipal): the information (e-inclusion), public services (e-government), and public consultation, decision making (e-participation), i.e. ability of the government and stakeholders (citizens and businesses) to communicate to each other in an efficient and electronic manner like providing information, posting of forms and registrations, e-payment, e-voting etc.

Ahn (2011) defines factors influencing the adoption of e-service and e-communication applications. E-service factors shaped by the economic rationale include the government's general capacity in providing services (government organisational capacity) and the perceived demand for e-service applications (demographic factors). E-communication applications shaped by the political rationale are influenced by three key factors: the nature of e-communication applications, political environment (influenced by the degree of demand for improved communication with the government from citizens), and the government structural attributes.

The environment (stability of society, economy and government; ICT infrastructure; human capital), the attitude towards government (trust or distrust in the government), and the government scope (scope of the government's services) are distinguished as core dimensions (Roadmapping eGovernment …, 2007; Singh et al, 2007), and 'cultural diversity' and 'citizen involvement' are drawn as the most uncertain variables with the largest impact (The Future of eGovernment ...., 2007).

Summarising, the external e-governance development factors are as follows:

- **geographic:** the area, status of the territory: urban/ rural, special (municipality, port, depressed areas); the remoteness and population density;
- **social**: the size of population and its structure (population by age / gender / education / family status; the number of recipients of social benefits; the birth rate);
- **economic**: the level of economic development and its structure (GDP per capita; number of enterprises; GDP of the main economic sectors; foreign direct investment; household income (the average wage); unemployment rate);
- **political**: the concentration of social elite; the level of political participation; the level of trust in government;
- **cultural**: the level of literacy and education of the population (literacy rate, number of libraries and (higher) education institutions, enrolment of students in (higher) education institutions), the customers'/citizens' view on the usefulness and success of public organisations websites (cultural resistance);
- **technological:** the ICT infrastructure capacity (telecommunications and network infrastructure) and the e-readiness (access to the ICT and computer literacy);
- **legal – regulatory**: E-government legitimation (legislation on e-procurement, e-voting, e-survey, digital signature);
- **institutional – organisational:** the structure of public administration system (centralised-decentralised system and/or the local government model), the stakeholders binding to interests representing groups (business, environmental groups, communities, local action groups etc.).

3. Materials and methods

In January 2012, Lithuanian scientists assessed the development level of municipal websites of the Republic of Lithuania on the basis of municipal websites survey instrument, developed by E-Governance Institute at Rutgers University (USA) and the Global e-Policy e-Government Institute at Sungkyunkwan. The development level of municipal websites was estimated by using the methodology as of 2011 Rutgers E-Governance Performance Index. The websites of all 60 Lithuanian municipalities were assessed according to 104 factors. All factors were divided into 5 groups (privacy and security;

Table 1

Typologies of Lithuanian local municipalities by rurality

No.	Groups of local municipalities	Number
1.	Strong rurality	7
2.	Medium rurality	20
3.	Weak rurality	18
4.	Semi urban	8
5.	Urban	7
6.	*Total*	*60*

Source: authors' construction based on Melnikiene R. et al., 2011

usability; content; services; and citizen participation) (Domarkas et al., 2012).

Twenty-two external factors that may have impact on the development of municipal websites in Lithuania were selected on the basis of the results of analysis of scientific literature. The factors applied in this research present factors from 5 groups (Table 2). Other groups of factors are not relevant as all municipalities operate in the same legal conditions. One of the main limitations in the analysis of development level of municipal websites is associated with the lack of data about municipalities. For example, there are no data about households that have personal computers and Internet access, and persons who use information and communication technologies (computer and Internet) in each municipality. Therefore, it is necessary to find compromise between the present data on the external factors and the factors of the development of municipal websites. The research made use of the data on 60 Lithuanian municipalities from Lithuanian Department of Statistics as of 2011 and 2012 (Lietuvos statistikos departamentas, 2012).

The grouping of Lithuanian municipalities according to their level of rurality was used by dividing them into 5 groups (Table 1). The typology based on rurality dimension has these criteria: a) the remoteness of the territory; b) the density of population; and c) the number of residents in the centre of the territory. These criteria are stable enough at a long time and characterise the specifics of municipality.

The development of websites of Lithuanian municipalities is influenced by various factors. The correlation analysis is a useful method, which can help reveal the factors that may determine differences in the development of municipalities' websites. The aim of the correlation analysis was to find relation between the development index of municipal websites and the 22 external factors. The statistical analysis was performed with the software *SPSS Windows 13.0* and *Excel 2003*. The Spearman coefficient was estimated using the correlation analysis in order to find the relations and their strength; p value of <0.05 was considered statistically significant.

The correlation between the development index of websites of all municipalities and the 22 selected external factors was estimated first. Afterwards, these relations were analysed by grouping municipalities into three groups (rural, semi urban, and urban) and dividing three rural municipal subgroups (strong rurality, middle rurality, and weak rurality). This analysis helped find particularities of the external factors impact on the different development level of rural municipalities' websites.

4. Results

According to the correlation analysis (Table 2), the development indexes of websites of all municipalities (N=60) and the major external factors were statistically significantly related. The development indexes of websites were closely associated with 15 factors ($p\leq0.05$). Furthermore, the correlations between Rutgers index of municipal websites and even 13 factors were highly statistically significant ($p\leq0.01$). All of these correlations, except one (the rural population), were positive.

The economic and social factors were found to be the most common factors that have impact on the development of websites. The development level of municipal websites increases with the increase of foreign direct investment ($rs=0.55$, $p\leq0.01$), the number of employed persons ($rs=0.57$, $p\leq0.01$) and unemployed persons ($rs=0.55$, $p\leq0.01$), operating economic entities ($rs=0.59$, $p\leq0.01$), tourists ($rs=0.48$, $p\leq0.01$) and the average net monthly earnings ($rs=0.31$, $p\leq0.05$). The authors noticed a medium strong positive correlation between all economic factors and the development indexes of websites, and a weak positive correlation between the average net monthly earnings and the number of tourists. A medium strong positive correlation is observed between the development level of websites and some of the social factors: the number of population ($rs=0.56$, $p\leq0.01$), working age population ($rs=0.56$, $p\leq0.01$), males ($rs=0.56$, $p\leq0.01$) and females ($rs=0.58$, $p\leq0.01$). Number of recipients of the social assistance benefit ($rs=0.48$, $p\leq0.05$) affects the development level of websites weakly.

The impact of geographic factors on the development level of websites is not as clear as the impact of economic and social factors. A medium strong correlation is noticed between the development level of municipal websites and the living place: the higher number of urban population in municipalities is related with the higher development indexes of websites ($rs=0.60$, $p\leq0.01$). On the contrary, the smaller is the number of rural population in municipalities, the higher is the development index of websites ($rs=-0.29$, $p\leq0.05$). Though, this relation is very weak. The population density ($rs=0.35$, $p\leq0.01$) is weakly related with the development of websites: when the population density is greater, then the development

Table 2

Correlation between Lithuanian Municipal Website Development Factors and Rutgers E-Governance Performance Index as of January 2012 (Spearman coefficient)

No.	Factors groups	Website development factors	Rutgers index in local municipalities						
			Strong rurality (N=7) 1	*Medium rurality (N=20) 2*	*Weak rurality (N=18) 3*	Rural (N=45) 1-3	Semi urban (N=8) 4	Urban (N=7) 5	Total (N=60) 1-5
1.	Economic	Foreign direct investment (2010)	-0.11	-0.36	-0.34	0.16	-0.54	*0.78**	*0.55***
2.		Employed persons (2011)	-0.17	-0.21	-0.21	0.32	-0.04	*0.33**	*0.57***
3.		Registered unemployed (2011)	0.09	-0.26	-0.18	0.36	-0.15	*0.87**	*0.55***
4.		Average net monthly earnings (2011)	-0.25	-0.04	0.37	0.18	-0.03	0.61	*0.31**
5.		Operating economic entities (2012)	0.21	-0.24	-0.31	0.31	-0.01	*0.84**	*0.59***
6.		Tourists (2011)	0.61	-0.18	-0.18	0.18	0.10	0.70	*0.48***
7.	Social	Population (2012)	0.07	-0.22	-0.28	0.35	0.02	*0.85**	*0.56***
8.		Working age population (2012)	0.05	-0.24	-0.27	0.35	0.02	*0.84**	*0.56***
9.		Retirement age population (2012)	0.21	-0.07	-0.22	0.34	0.06	*0.85**	*0.58***
10.		Males (2012)	0.06	-0.22	-0.29	0.35	0.04	*0.84**	*0.56***
11.		Females (2012)	0.07	-0.21	-0.27	0.35	0.01	*0.85**	*0.58***
12.		Recipients of social assistance benefit (2011)	0.15	0.22	-0.17	0.39	-0.14	*0.90**	*0.48***
13.		Live births (2011)	-0.12	-0.08	-0.46	0.30	0.02	0.54	-0.06
14.	Geographic	Population density (2012)	*-0.78**	-0.14	*0.54**	0.24	0.26	0.36	*0.35***
15.		Area	-0.72	-0.11	-0.27	-0.08	-0.15	*0.78**	-0.12
16.		Urban population (2012)	0.15	0.38	0.17	0.36	0.11	*0.85**	*0.60***
17.		Rural population (2012)	-0.03	-0.31	-0.39	-0.09	-0.12	0.75	*-0.29**
18.	Cultural	Colleges and universities (2011)	-	-0.31	-0.05	0.34	0.33	0.74	*0.54***
19.		Libraries (2011)	0.27	0.09	-0.24	0.31	0.02	0.50	0.09
20.		Cultural centres (2011)	0.21	-0.06	-0.09	-0.11	-0.13	0.12	-0.05
21.		Museums (2011)	0.62	-0.29	-0.23	0.24	-0.08	0.49	-0.02
22.	Political	Voter turnout to local councils (2011)	-0.04	-0.13	0.12	-0.06	-0.41	0.27	-0.03

* Correlation is significant at the 0.05 level
** Correlation is significant at the 0.01 level

Source: authors' calculations based on the Statistics Lithuania data

index of municipal websites is higher. Analysis results revealed that the development of municipal websites was not related with their area.

This study showed that a medium strong positive correlation was noticed only between one of the cultural factors – the number of colleges and universities – and the development level of websites (rs=0.54, p≤0.01). It is estimated that there are no statistical significant correlation between the development level of websites and the number of libraries, cultural centres and museums. There are also no statistical significant relation between the development level of websites and the voter turnout to local councils (the political factor).

The results of this study showed clear differences between the factors that have impact on the development level of websites in rural and urban municipalities. Statistically significant strong positive correlation was found between the development level of websites and these economic factors: the foreign direct investment (rs=0.78, p≤0.05), the number of unemployed (rs=0.87, p≤0.05), and economic entities (rs=0.84, p≤0.05) in urban municipalities (N=7). The correlation between the number of employed persons and Rutgers index is weak (rs=0.33, p≤0.05). Social factors have bigger impact on the development of municipal websites. Strong correlation is noticed between the development level of websites and the number of population (rs=0.85, p≤0.05), working age population (rs=0.84, p≤0.05), retirement age population (rs=0.85, p≤0.05), males (rs=0.84, p≤0.05), females (rs=0.85, p≤0.05), and recipients of social assistance

benefit (rs=0.90, p≤0.05). Analysis of the geographic factors showed a significantly strong correlation between the development of municipal websites and their area (rs=0.78, p≤0.05). This correlation is noticed only in the group of urban municipalities. The number of urban population (rs=0. 85, p≤0.05) has a significant strong impact on the development level of municipal websites in this group. However, there was no significant correlation between the political and cultural factors and the development level of websites in urban municipalities. The same tendency is noticed in rural municipalities.

The correlation between the development level of websites in subgroups of rural municipalities - strong rurality, medium rurality, weak rurality – and the 22 external factors was analysed in this study. A significant correlation was found only with one factor. The development level of websites was related with the population density in the groups of strong rurality (N=7) and weak rurality (N=18). In the first case, this relation is negative and strong (rs=-0.78, p≤0.05) and it means that the development index of websites is higher when the population density is smaller. In the second case, the correlation is positive and medium strong: the development index of websites is higher when the population density is bigger. This study showed that all the other factors had no correlations between the development level of websites in the groups of strong rurality (N=7) and weak rurality (N=18). Moreover, there was estimated no statistically significant correlation between the development of websites and the 22 external factors in the group of municipalities of medium rurality (N=20). The correlation analysis was also applied in order to find the relation between the development indexes of websites and the economic, social, geographic, cultural, and political factors in all rural municipalities (N=45). Unfortunately, no significant relations were found.

Clear differences were noticed according to comparative analysis of the development indexes of websites and the economic, social, geographic, cultural, and political factors in groups of total, urban, and rural municipalities. The development level of municipal websites is significantly medium strongly (the most common) related with the economic and social factors in the group of total municipalities. The impact of the geographic factors is less significant. The impact of cultural factors on the development level of websites is very weak. The political factor has no relation with the development of municipal websites. A complex of economic, social, and geographic factors plays an important role in the development of websites in urban municipalities. The economic and social factors do not significantly impact rural municipalities' websites development level, except the population density as the economic and social indicators of Lithuanian rural municipalities which are much lower than the urban municipalities' indicators as well as the small sample of rural municipalities.

5. Discussion

The UN (2012) research shows that countries endowed with a high income per capita, a small population, established ICT and education infrastructures, and the high level of human capital can easily utilise advantages afforded by the ICT and face fewer challenges. Lithuania meets these criteria partly and has the 29th rank out of 193 of E-government index (UN, 2012). Lithuania has Internet penetration of almost 70 per cent in e-service usage but two-thirds (66 per cent) of the country's residents have never used e-government services (Pavilenene, 2011).

Geographic factors – the population number and density, the urbanisation level – have controversial impact on e-governance development. Individuals in urban locations and highly populated areas are more likely to use the Internet than those in rural and low populated areas, while some cross-country studies find a non-significant or negative effect of urbanisation and population density on the ICT adoption (Vicente et al., 2011). This effect is observed in this study too – a negative correlation is seen in the case of strong rurality municipalities, and positive – in the case of weak rurality and total municipalities group. This can be explained by the *economic factors* impact. The income gap in the ICT penetration is noticed on the rural-urban divide as most of the world's poor people live in rural areas, and most of the world's rural populations tend to be poor (UN, 2012). Seeking for local economic development growth, the information and e-services provision is used to crate business friendly environment and reduce the bureaucratic burden; thus, factors – the size of foreign direct investments and the number of operating entities – have high impact on websites development. This conclusion is supported by the results of research in total and urban municipalities groups.

Social factors impact is controversial. A country with a very large population should provide many more online access points to its citizens than a country with a small population (UN, 2012). The bigger number of people in vulnerable groups (the number of unemployed, retirement age population, recipients of social assistance benefit) should encourage the development of municipal websites as these people are the users of many public services. Results of this research confirm this especially in the group of urban municipalities.

Results of this research confirm that only one *cultural factor* – the number of education institutions – has a high impact on the ICT penetration as they were one of the first organisations connected to Internet (Norris, 2001). The evidence of other cultural factors impact is weak because of data limitations (Vicente et al., 2011).

Political factors impact is limited as the focus of the ICT applications concentrates technologies on the management and delivery of services rather than on other areas. The democratic potential of e-government is mostly underutilised (Ahn, 2011) as the Internet is not yet running as effective medium facilitating democratic inputs into the policymaking process (Torres et al., 2006). This can be presumed that the dominant stakeholder in development is the bureaucratic administration rather than citizens or politicians (as in Norway) (Flak et al., 2005). Citizens perceive moderate value in e-government for knowledge acquisition and communication, while little as a vehicle of democratic engagement (as in the UK) (Kolsaker and Lee-Kelley, 2008). However, the USA municipalities analysis show that the greater political competition as well as the high level of citizen involvement and the interest in politics increase the e-governance

development as enables online communication with the elected officials and allows citizens to oversee the council activities (Ahn, 2011).

A major challenge for policymakers and managers remains not only to increase the overall level of e-service usage but go for the more complex transactions such as e-consultation. In Lithuania (as well as in Australia), the greater attention to social and economic inclusion and equity (i.e. providing access to infrastructure, training and capacity building) especially in rural municipalities is needed as the lack of participation in the information society are by those groups of the population who are the primary users of government services (Dugdale, 2005). Horizontal and vertical e-government linkages among various institutions and nodal points can create the opportunities for greater participation and social inclusiveness (UN, 2012).

The internal factors should be identified and analysed in order to understand comprehensively the impact factors that determine the municipal website development. Therefore, further research on relations of the municipal websites level and the internal factors is a necessity.

Conclusions

1. E-governance encompasses the ICT-mediated interaction between citizens and government used for information provision, public services delivering, and citizens' participation in public governance. Such a multidimensional nature determines the complex factors influence on the e-governance development (including public organisations websites as the major channel of interaction between the government and citizens): geographic, social, economic, political, cultural, technological, legal-regulatory, and institutional-organisational.
2. One geographic factor – the population density – has a significant impact on the development level of websites in rural municipalities. This factor is significant for the development level of websites only in municipalities of strong rurality and weak rurality. Other external economic, social, geographic, cultural, and political factors are not related with the development indexes of websites in rural municipalities.
3. A complex of the external economic, social, and geographic factors have significant impact on the development level of websites in the groups of total municipalities and urban municipalities compared with the rural municipalities. One cultural factor – the number of colleges and universities – has impact on the development of websites in the group of total municipalities. Other cultural factors and the voter turnout to local councils (the political factor) do not determine the development of municipal websites.
4. Analysis of the impact of external factors on the development levels of local government websites showed the incomplete usage of municipal websites as the interactions channel between local government and stakeholders, focusing more on information provision and public services delivery. Major challenge for policymakers and managers remains not only to increase the overall level of e-service usage but go for the more complex transactions of e-communication. The internal factors analysis is required for comprehensive evaluation of driving factors impact.

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HOW TO SELECT THE RATES OF SUSTAINABLE DEVELOPMENT IN RURAL TERRITORIES: THE INSIGHTS TO METHODOLOGICAL APPROACH

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Abstract. The integration of rural territories into contemporary development processes has lately been an undoubtedly popular subject of researcher discussions. A large area of rural territories, a relatively small number of population in them, and a high percentage of senior people make a certain impact on the economic development of countries and encourage different kinds of research aiming to motivate faster development. Rapid development at a merely economic level does not any longer comply with contemporary issues as the national strategies of regional development of most countries give priority to sustainable regional development, with the attention focussed on environmental protection and social security of population. The paper discusses the factors of rural territory development and the environmental and security criteria covering different spheres. The priorities and ways of identification sustainable development rates of rural territories are discussed, and the prerequisites and factors that affect sustainable development and the assessment of its situation are established. A methodological approach is presented, which can be applied both for the assessment of rural territory development in one country and for the comparison of sustainable development of rural territories in border regions of several countries.
Key words: rural territories, security factors, sustainable development rates, methodological approach.
JEL code: R58

Introduction

The principal provisions of sustainable development have been regularly discussed and developed in a number of countries of the world. Quite a few European countries have included the provisions of sustainable development into their national development strategies (Lithuania, Belgium, Poland, Austria, Latvia, Estonia etc.) and have been developing them at a national level. The very conception of sustainable development has been thoroughly discussed all over the world. However, a topical issue that has received insufficient researchers' attention is a practically targeted application of methodologies of sustainable development that would provide appropriate information about the assessment of sustainable development with regard to a specific process. Some research papers have dealt with sustainable development at a regional level (Ciegis R. et al. 2010a, 2010b; Navickas K. and Tamosiunas T., 2008; Navickas K., 2009); however, they have not sufficiently disclosed or justified the methodology of rates identification. J. Staniskis et al. (2005) studied the problems of sustainable development of industry and assessed different aspects of clean production and pollution prevention in industry. The methods of rates identification turned out to be rather abstract, and their practical application – quite complicated. Frequently, the identified rates of sustainable development (hereinafter: SD) had the characteristics of qualitative properties and, thus, could be measured in every specific case.

R. Dapkus (2007) analysed the Lithuanian system of environmental impact assessment (EIA) and its influence on sustainable regional development and provided recommendations for the improvement of the EIA system and for the increasing of the effectiveness of strategic planning. Yet, he did not disclose in what way and which rates it could be possible to indicate the evolution of SD at a certain specific period of its studies. Ciegis R. and Ramanauskiene J. (2011) tried to identify the principles of assessment of Lithuania's SD and to assess the development of Lithuania in terms of sustainability. The above quoted and similar papers prove that the subject is topical and has been regularly addressed by researchers; yet, the analysis of SD processes and the methodology of establishment of specific rates that identify certain processes have not been developed well enough.

The present paper analyses different approaches and provides recommendations for more effective application of the principles of existing methodologies for the identification of specific rates of sustainable development in rural territories.

The aim of the paper is to analyse the national SD strategy, the papers of Lithuanian and foreign researchers, the opinions of experts, and to work out a methodological schema that would enable to establish the rates and their combinations best identifying sustainable development of rural territories.

The object of the research is the selection of conditions and factors of the development of rural territories and of the reflecting rates and their assessment in terms of sustainability.

The methods of the research include the analysis of scientific literature, the principles of general and logical analysis, the methods of comparison and summary as well as abstraction, and the studies of expert opinions and their survey by means of a questionnaire.

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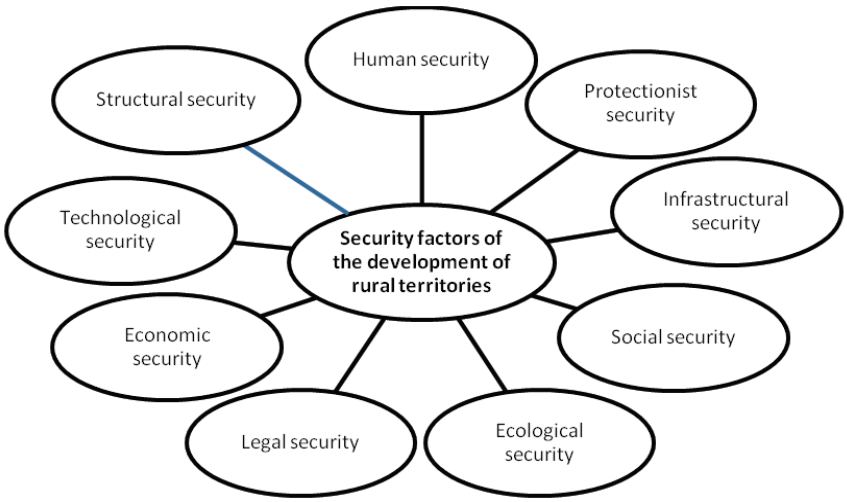

Fig. 1. **Security factors of the development of rural territories**

Research results and discussion

Prerequisites for the rural territory development

The development of rural territories is undoubtedly of great significance for the development of the country and is included in the long-term development strategies of the Republic of Lithuania. In 2002, the Seimas (Parliament) of the Republic of Lithuania approved the *National Long-Term Strategy until 2015* and identified three priorities for the country: the knowledge society, secure society, and competitive economics, with a special attention to the development of agriculture and rural territories. As laid out in the strategy, two directions of farming development were placed in the forefront: specialized intensive commodity farming operating in the market of raw materials and farms that produced natural, organic, and non-traditional products and operated in niche markets.

A. Balezentis (2011) related the development of rural territories to the factors of landscaping, farmsteads, and their arrangement. Referring to O. Stripeikis and P. Zukauskas (2004), small and medium businesses are prerequisites for the development of national economy, create new jobs, raise the level of the region development, and reduce the disparities in its development. The analysis of the global experience leads to the conclusion that an economic system could neither normally function, nor improve without the market of small and medium businesses.

J. Ramanauskas and A. Gargasas (2011) related the development of rural territories to the development of tourism industries. The paper emphasized the growing public interest in rural tourism over the recent decades, thus pointing out that it is necessary to maintain and support the business. In the researchers‘opinion, certain attention from the national Government and governmental institutions had been noticed regarding the rural tourism business in the form of adoption of special legal acts and provision of financial support from the state budget and the EU structural funds.

As observed, some researchers have not only insufficiently emphasized the development of specific activities in rural territories, but have also offered a general and unspecified opinion that searching for activities alternative to agricultural ones play an important role in the rural development. Quoting Astromskiene A. et al. (2012), such rapid development of alternative businesses in the country could be accounted for primarily by the economic restructurization, the wish to overcome the structural disparities of production, and its too great concentration that came into being during the period of administrative-command economy. In Lithuania, the emergence of activities alternative to agricultural ones and the improvement of the infrastructure to support their development have became the most promising fields for the occupancy of national rural population and restructuring of the market. The research in Latvia has shown that the decrease in employment in agribusiness might provoke the decrease also in other sectors of economic activity, especially sectors of services in rural space (Krievina A. et al., 2012).

The analysis of the present socio-cultural and economic situation in rural settlements of Lithuania and the condition of their historically developed environment demonstrates that both analysed aspects have been exposed to downward trends (Karvelyte-Balbieriene V. et al., 2009). However, the examples of other countries having renewed and re-used their historically developed environment of their rural depopulated areas show the enhanced and improved quality of social and economic life there (Rypkema D. et al., 2011). Therefore, it would be worth to transfer such a practice to our rural territories in order to enhance the entrepreneurship, heritage tourism, and even innovations making country‘s rural settlements more attractive places.

The factors of rural development described in research papers can function separately or in interrelation: it is just important to prevent the competition among the factors responsible for sustainable development of rural territories; moreover, their interrelation should have a synergetic character and ensure security. Security factors of the development of rural territories are presented in Figure 1. The security of the infrastructure and the use of the existing engineering networks could be named as the

second factor in the development of different activities in rural territories. The safety of the infrastructure should be related to evaluation of network capacity with the aim of making no harm to the already existing users, to the development of the road network and appropriate use of the existing roads, proper maintenance of the road surface etc. Protectionist security means observation of national interests and coordination of the activities laid out in the national development strategies. Legal security defines legal conditions for the provision of the development of rural territories, ensuring the legitimacy, and proper formalization of activities in accordance with the laws of the Republic of Lithuania.

The most important holistic security requirement is the prevention of making harm to other factors that affect the development of rural territories, i.e. human safety, technologies, transport systems, environment, economic indicators etc. According to the authors' point of view, social security is a very significant factor in the development of rural territories. That is a factor of equal value to others – in seeking the security of people, infrastructure, economy etc. – to involve the subjects-participants of the process.

Basing on the model of change management in an organization provided by R. Ciegis and R. Grunda (2007, p. 23) and some other statements of the aforementioned authors, we can define the assessment procedure of the sustainability of different processes. The conception of sustainable development applied to a process is divided into stages when one perceives what sustainability is, how to become sustainable, and what indicates sustainability (Ciegis R., Grunda R., 2007). On the basis of the above mentioned sequence, the authors of the paper divide the process of the rates identification of rural territories' sustainable development into three stages: the understanding of sustainable development of rural territories; defining how the development of rural territories can be made sustainable; and verification of what proves the sustainable development of rural territories and how it can be measured. In Stage 1, the understanding of sustainable rural environment is developed, which would reflect the theoretical conception of sustainability. In our case, it would characterize the ecological, economic, and social environments of rural territories, theoretically establish and define the significance of the environments for the development of rural territories, and identify the level, which the implementers should deal with. In Stage 2, it is necessary to establish the principal components of sustainability of rural territories. In our case, it is necessary to identify the principal criteria that would reflect the ecological, economic, and social development. Their intensity and distribution should be equal, and their summary expression should be one, or the general intensity should be 100% (Ciegis R. et al., 2010a).

In Stage 3, it is necessary to develop an understanding of what will indicate the sustainability of rural territories, i.e. the testing of the selected criteria. The (non) sustainability of the development of rural territories will be indicated by the non-compliance of the components of sustainability with the above mentioned summary expression and intensity (33.3% individually for each of the components of sustainability). As stated by K. Navickas and N. Navickiene (2009), the criteria that can serve as a basis for the establishment of enterprise sustainability can be justified by specific instruments used for the analysis of services and processes. In our case, in rural territories, the indices reflecting the sources of waste or pollution and their condition can be established as well as the rates reflecting economic outcomes or the indices defining the social level.

Identification of principal sustainability levels and rates in rural territories

As noted at the beginning of the paper, three principal levels of sustainable development are mainly described in sources of literature: ecological, economic, and social. The significance of the three components in the context of sustainable development are referred to by a number of authors (Becker J., 2010; Ballou R.H. and Andersson D.E., 2005; Hickford A. J. and Cherrett T. J., 2007; Barrera-Roldan A. and Saldivar-Valdes A., 2002; Jabareen Y.R. , 2004, Moldan B. and Dahl A.L., 2007). The major and the most frequently faced problem is the difficulty to appropriately combine the above mentioned groups of conceptions of sustainable development and the use of them as a general instrument of sustainable development which would contribute to the pursuit of sustainable development. All the components of sustainable development are to be assessed equally.

It is important to establish the indices of sustainability as that is a responsible process predetermining the success of the research. Proper identification of rates and further collection of accurate data accounts for the development of the concept of assessment of sustainable development of rural territories. In that case, logical combination of qualitative and quantitative data is a necessity as mere identification of qualitative indices for the characterization of sustainable development may lead to a question how to obtain some of the data and to verify them for a specific region. In the stage of the outcome assessment, it is assessed whether the activity or the processes taking place comply with the planned standards at all the levels of sustainability.

To identify ecological indices, one can use the reports of environmental monitoring. The reports reflect the principal environmental protection (ecological) rates significant for the activity in rural territories. The indices of environmental protection are measured and assessed each year. The measurements aim to establish whether the activities carried out in rural territories are not detrimental to the environment.

Economic indicators in the development of rural territories, just like in many other developmental processes, are also of great significance. Since the Lithuanian strategy of sustainable development was drafted as a European Integration Strategy, the assessment of the achievements and problems of Lithuania sustainable development mainly focused on the rate of convergence with the old EU member states and referred to the basic aspiration of the National Strategy of Sustainable Development: in accordance with the rates of economic and social development and the effectiveness of the use of resources, to reach the average of the old EU member states of 2003 before 2020; in accordance with the rates of the environmental pollution, Lithuania sought not to exceed the norms allowed in the EU and to observe

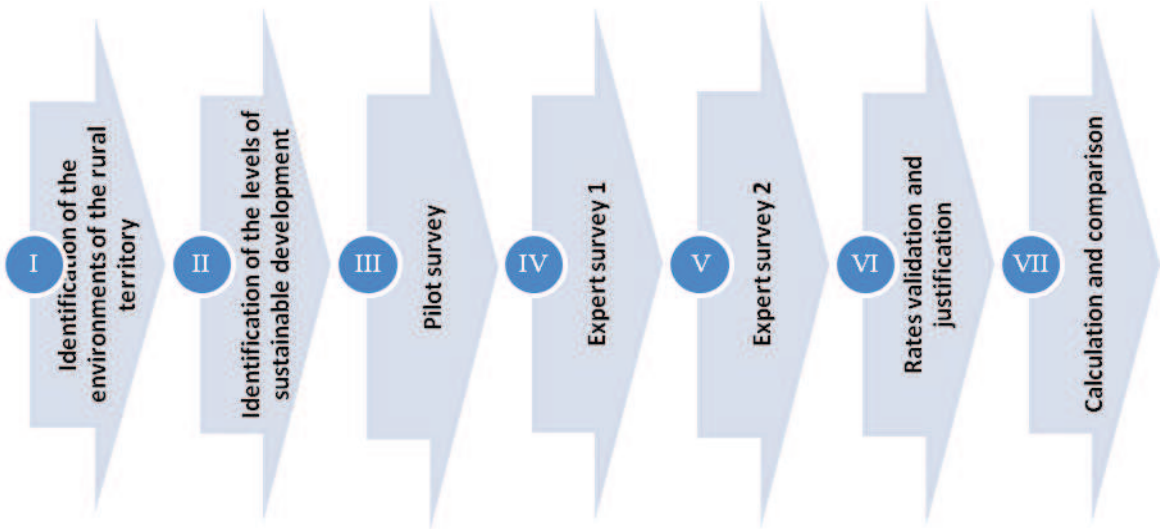

Fig. 2. **Schema of rural territory development and selection of the rates of sustainable development**

the requirements of the international conventions limiting environmental pollution and the impact on the global climate (Juknys R., 2012).

The assessment of economic rates takes place every year with the aim to establish financial benefit, the taxes payable to the state, and the tasks of the implemented protectionist policy. In the identification of the rates best reflecting economic activity, we will use national activity reports and the Eurostat statistical data on the activities carried out in the country. The indices defining the social level of sustainability will be identified by adaptation of the rates of the *National Strategy of Sustainable Development* of the Republic of Lithuania. By combining the methodologies of different authors for the identification of sustainable development, we will be able to establish a unique sequence for identification of the rates of assessment of sustainable development of rural territories. The sequence covers seven individual steps, whose consistent implementation can lead to the establishment of the rates identifying the sustainable development of rural territories (Figure 2).

As the identification of the rates for the assessment of the sustainable development of rural territories is of special significance, the process ought to get the greatest attention. The total process of the identification of the rates of development of rural territories can be characterized by the following figures: 75/26/14/12. By Action 3 (Figure 2), all the rates that characterize the development of rural territories are established; they identify three levels of sustainability. They disclose the factors that affect ecological, economic, and social processes taking place in an organization. The rates establishing the sustainability of the rural territory development were identified based on the above named sources (document analysis, interviews with specialists and consultants in a respective field etc.). In the activity of rural territory development, they should meet the criteria that predetermine the technological development of rural territories and the factors of security, and are to comply with one of the sustainability levels (ecological, economic, or social). By Action 4, the specialists of rural territories (in the paper, they were named as experts who conducted expert survey) were presented a questionnaire and asked to assess 74 rates by characterizing how important the measured rates were for the development of rural territories. The individuals, named as specialists of the development of rural territories, knew the specificity of the development of rural territories and were informed of what was important for rural regions. The respondent specialists identified 26 items out of 74 as the most significant ones for the development of rural territories and the ones to be used in the assessment of sustainability. By Action 5, named in the paper as "expert survey 2", the 26 rates identified by the rural territory development specialists were presented to specialists of sustainable development. SD specialists involved in the research were people knowledgeable about the specificity of sustainable development and themselves were working in the field. The above-mentioned experts, who were issued different kinds of questionnaires, were asked to assess the rates significant for the development of rural territories in terms of sustainable development. The survey included 26 principal rates. Within the aforementioned rates, the SD specialists named 14 rates significant for the development of rural territories in terms of sustainable development identifying the development of rural territories at the levels of sustainability. By Action 6, we performed sensitivity analysis of the 14 selected rates. Sensitivity analysis is a research method during which the rates identified by experts are compared to verify whether the given rates do not indicate the same state of the environment only in a different way of expression. In our case, the testing of the rates was performed by observing their distribution in different environments. A matrix acceptable for the research was elaborated, which reflected the three selected levels of sustainability: ecological, economic, and social and the environments, which were identified by the rates: general, the rate related to other subjects, and individual efforts of the developers of rural territories. Among the 14 initial rates, 12 were selected for the further research: we noticed

that at the ecological level, the rates identified both by the specialists of rural territory development and SD indicated the same condition of the environment. In the authors' opinion, such outcome did not really meet the requirements of the research as two rates out of 10 were related to the same environment of rural territories. Therefore, the two rates identifying the same condition were removed from the research. An assumption was made that the basic rates representing sustainable development were of equal value and complied with the research sample, since the identified rates selected for the research were tested by two expert surveys. Sensitivity assessment of the selected SD rates was performed. The measurement of the sustainability rate was standardized in accordance with the EU Directive (ISO 2010 ISO 26 000). The described methodological approach is intended to be transferred for the assessment and strengthening of regional development policy in the cross-border rural territories of few neighbouring countries: Poland, Russia (Kaliningrad region), and Lithuania.

Conclusions

1. All the factors of sustainable development in scope of rural territory development have to reflect security criteria: human security, protectionist security, infrastructural security, social security, ecological security, legal security, economic security, technological security, and structural security.
2. The rates of rural territory development have been established at three levels of sustainability. Their intensity in each component is uniform, and the summary expression is equal to one. Sustainable development, in scope of the development of rural territories, as a complex multidimensional structure, can be stimulated by regulated, planned, or spontaneous interventions caused by the environment.
3. In order to ensure sustainable development of rural territories, it is necessary to identify the sources of waste and pollution and the indices reflecting their condition, the rates reflecting economic outcomes, and the rates characterizing the social level.

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CORPORATE SOCIAL RESPONSIBILITY: A CASE STUDY OF A LOGISTICS COMPANY

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Abstract. The aim of the study was to examine the respondents' knowledge of the concept of corporate social responsibility (CSR), the benefits of CSR implementation in DB Schenker and to identify the reasons and types of socially responsible activities undertaken by this logistics company. The article uses primary and secondary sources and refers to the literature on the subject. The study shows that the vast majority of DB Schenker employees were familiar with the concept of CSR, but their understanding of it was different. Younger workers identified corporate social responsibility with actions by companies towards society and the environment. The older employees defined CSR mainly as transparency and legal compliance in business operations. According to the respondents, DB Schenker takes socially responsible actions in the following areas: towards the local community (88.2%), the environment (74.1%), the employees (51.8%), and the market (28.2 %).
Keywords: corporate social responsibility, DB Schenker.
JEL code: M 14

Introduction

Until recently, it was widely believed that companies operate solely in order to make a profit. Few entrepreneurs and managers could see the need to link business activities with ethics and in particular with social responsibility and the natural environment protection. Nowadays an increasing number of business entities show interest in the management concept, which involves activities deliberately oriented on broadly understood social and environmental interests (Woloszyn, J., Stawicka E., M. Ratajczak, 2012). One could say that the idea of a socially responsible company starts to penetrate the reality of Polish business. Therefore, it seems valuable to address the issue, identify the areas and scope of such initiatives, assess the benefits they bring and determine whom they serve.

The purpose of the study was to examine the respondents' knowledge of the concept of corporate social responsibility and identify the reasons and scope of the activities undertaken by the logistics company DB Schenker. The object of the study was the board office staff DB Schenker on corporate social responsibility. In the study, the following hypotheses were formulated:

1) employees are more aware of CSR strategy by the company to the local communities and the environment than to employees;
2) understanding of the nature of corporate social responsibility depends on the age of employees;
3) employees, when choosing an employer, pay more attention to the professional benefits that can be achieved, than engage in social activities.

To explore the issue of corporate social responsibility concept a diagnostic survey method was used, which consisted of three techniques: survey by standardized questionnaire, participant observation, analysis of the literature and Internet sources. In 2012, A. Leontowicz under the supervision of the author carried out the empirical studies on 85 employees, members of the executive board of DB Schenker. The respondent group consisted of 61% of women and 39% of men. The largest group of respondents (46%) were middle-aged (36 - 45 years), 25% of respondents were under the age of 36, and 30% were respondents over 45 years of age. The vast majority of these people were very well educated as 95% were university degrees holders.

The idea of corporate social responsibility in literature

Corporate social responsibility is defined by the European Commission as a voluntary integration of environmental and social considerations into business operations, over and above legal requirements and contractual obligations. The implementation of the concept of corporate social responsibility was supported by the European Parliament resolution of 13 March 2007, which states the following:

— the increasing social and environmental responsibility by business, linked to the principle of corporate accountability, represents an essential element of the European social model and Europe's strategy for sustainable development;
— CSR should tackle new areas such as lifelong learning, the organisation of work, equal opportunities, social inclusion, sustainable development, and ethics;
— there is a link between corporate social responsibility (including activities to eliminate inequality and promote fair wages policy) and the competitiveness of the company.

According to J. Adamczyk, corporate social responsibility can be interpreted as a commitment to transparent and ethical business according to the principles of sustainable development and the pursuit of social welfare, taking into account the expectations of stakeholders, but in compliance with the law and norms

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Table 1

The idea of corporate social responsibility according to the respondents (in %)

No.	Specification*	Total		Age (in years)				
		N=85	%	<25	25-35	36-45	46-55	>55
1.	Engagement in social activities	61	71.8	6.5	27.9	32.8	27.9	4.9
2.	Environmental protection	57	67.1	7.0	29.8	43.9	15.8	3.5
3.	Respect for workers' rights	53	62.4	7.5	17.8	30.2	32.1	13.2
4.	Marketing tool	33	38.8	12.1	33.3	21.2	18.2	15.2
5.	Compliance with the law	19	22.4	5.3	10.5	15.8	31.6	36.8
6.	Transparent business operations	17	20.0	5.9	11.8	17.6	23.5	41.2

*The respondent could give more than one answer

Source: author's research

of behaviour. Taking into account the expectations of stakeholders and creating value for them leads to social stability, which is necessary to reduce uncertainty in business operations (J. Adamczyk, 2009). The concept of social responsibility is considered a tool for the creation of competitive advantage on the market where customers, employees, and investors regard social values as increasingly important.

According to A. Paliwoda-Matiolanskia, corporate social responsibility is "an effective business management process, which by responding to the identifiable expectations of stakeholders, contributes to the increased competitiveness, ensuring the stability and sustainable development of the company, while shaping favourable conditions for economic and social development creating both social and economic value" (Paliwoda-Matiolanska A., 2009).

The complex character of CSR is well rendered in the ISO 26000 standard published in November 2010. According to ISO 26000 definition, social responsibility is the responsibility of an organization for the impacts of its decisions and activities on society and the environment through transparent and ethical behaviour that contributes to sustainable development, including health and the welfare of society; takes into account the expectations of stakeholders; is in compliance with applicable law and consistent with international norms of behaviour; and is integrated throughout the organization and practised in its relationships (Guidance on Social ..., 2008). ISO 26000 standard alongside with the principles of social responsibility, defines seven core areas of CSR, namely: corporate governance, human rights, labour practices, the environment, market practices, consumer issues, and community involvement and development. (Habek P., Szewczyk, P., 2010). It aims to support organizations in the area of social responsibility and provides practical guidance regarding the introduction of the concept, identifying stakeholders, improving the reliability of reports, enhancing confidence in the organization and among stakeholders and developing corporate social responsibility awareness. The resulting standard is universal and consistent with other recognized standards in the area of corporate responsibility, which use the term "corporate social responsibility", because it has been created for all organizations, not just for businesses. This standard is a set of voluntary guidelines that can be used by any type of an organization – service providers, commercial companies, public institutions, etc. (Ocieczek W., Gajdzik B., 2010).

Social responsibility of a company implies the commitment to take action in different areas. There were fears that if a company is responsible for a particular field, it can have influence over it (Stoner J. A. F., Freeman R. E, Gilbert D. G., 1997). Therefore, P. Drucker warned that companies should limit their responsibility only to those areas where they have competence (Drucker, P., 1994). These concerns are particularly justified in the case of philanthropic actions as they may be taken in order to gain influence. Therefore, the concept of corporate social responsibility has both proponents and opponents.

The proponents of corporate social responsibility emphasize the need for any enterprise to bear the consequences of its operations. It involves the necessity to neutralize such negative effects of their activities as pollution of the environment, exclusion due to termination of employment, deterioration of material status and development of civilization diseases. At the same time, the social nature of company operations implies its important role in the economy, involving not only the satisfaction of material needs, but also participation in the civilization and cultural development of the society.

The opponents of this idea argue that the extension of the interpretation of social responsibility may threaten the economy, distracting businesses from their basic economic role, which is to make a profit for the owners (Copeland T., Keller T., Zurawin J., 1997). Other arguments against social responsibility relate to the possibility of a conflict of interests between various groups of stakeholders. The social engagement of enterprises is an opportunity to shape a positive image of the company and influence public opinion. However, many organizations lack business skills and experience necessary to assess the value and usefulness of various social, mainly charitable, programmes.

In conclusion, it should be noted that the integration of social concerns into business operations is important for the company, as it enhances the long-term development. Experience has shown that companies benefit from operating in a manner that society considers responsible. Therefore, the idea of corporate social responsibility requires the recognition and acceptance of

Table 2

The company's activity towards the local community, in the opinion of the respondents (in %)

No.	Specification *	Total	
		N=85	%
1.	Employee volunteering	80	94.1
2.	Cooperation with local NGOs	75	88.2
3.	Integration of the needs and opinion of the local community	67	78.8
4.	Initiating own social projects	60	70.6
5.	Providing material assistance	55	64.7
6.	Implementation of scholarship programs	50	58.8
7.	Transfer of part of the profit from sales of products and services	44	51.8
8.	Providing services, premises, or equipment free of charge	33	38.8

*The respondent could give more than one answer

Source: author's research

Table 3

CSR Initiatives implemented towards the environment, in the opinion of the respondents (in %)

No.	Specification *	Total	
		N=85	%
1.	Reducing waste production and promoting segregation	73	85.9
2.	Monitoring and implementation of recommendations for saving paper, power water, and recycling in the company	70	82.4
3.	Promoting pro-environmental behaviour among the stakeholders	65	76.5
4.	Offering environmentally friendly products	55	64.7
5.	The use of environmentally friendly technology	53	62.4

*The respondent could give more than one answer

Source: author's research

the community so that the expectations of companies can be identified and then met.

A collection of tools used to manage corporate social responsibility is considerable and closely linked to the company's organizational culture as well as its business profile. The most common and widely used include: public awareness campaigns, socially engaged marketing, ethical programs for employees, corporate governance, corporate responsibility standards, eco-labelling and social-labelling, socially responsible investment market, community involvement, and environmental management (Flipp E., 2008).

Results and Discussion

The empirical study shows that 96.5% of respondents had heard before about the idea of corporate social responsibility, and only 3.5% were not familiar with this concept. This shows the managers' interest in new ideas for a better and more efficient management of the company. Their understanding of the concept of corporate social responsibility is presented in Table 1.

More than two thirds of the surveyed employees understood the concept of corporate social responsibility mainly as the company's engagement in social actions, taking measures to protect the environment and respect for workers' rights. Defining the concept of CSR depended on the age of the respondents. The younger employees generally identified CSR with actions taken towards the society and to protect the environment, while older workers often identified CSR with compliance with the law and transparency of business operations.

The study shows that the most important benefits of implementing corporate social responsibility in the company include: better company image (32%), competitive advantage (26%), employee development (20%), environmental protection (11%), and increased customer loyalty (8%).

The aim of the study was to determine whether the employees knew that the concept of social responsibility had been implemented in the company. It turned out that 64% of the respondents were aware of the practice, 5% were of the opposite opinion, and the others were not able to answer clearly. Despite their familiarity with the term "corporate social responsibility", employees did not always perceive the manifestations of this strategy in their company.

According to the respondents, DB Schenker initiates acts of corporate social responsibility in the following areas: towards the local community (88.2%), towards the environment (74.1%), towards the employees (51.8%), and focused on the market (28.2 %). Data on the company's engagement in activities towards the local community are presented in Table 2.

Table 4

The actions taken by the company towards its employees in the opinion of the respondents (in %)

No.	Specification *	Total	
		N=85	%
1.	Conducting regular employee satisfaction surveys	80	94.1
2.	Offering training and professional development opportunities	77	90.6
3.	Funding of sports and culture activities	72	84.7
4.	Ensuring compliance with health and safety standards at work	70	82.4
5.	Creation of employment opportunities for people with disabilities and / or persons over the age of 50	67	78.8
6.	Good internal communication in the company	61	71.8
7.	Following of equality and anti-discrimination policy	59	69.4
8.	Ensuring favourable conditions for mothers and children	49	51.8
9	Assistance for employees made redundant	9	10.6

*The respondent could give more than one answer

Source: author's research

Table 5

CSR practices aimed at the market, in the opinion of the respondents (in %)

No.	Specification*	Total	
		N=85	%
1.	Implementing innovative technologies	77	90.6
2.	Reliable after sales service	65	76.5
3.	Reliable information about products and services	59	69.4
4.	Fair advertising	50	58.8
5.	Fair treatment and good communication with stakeholders	44	51.8
6.	Transparent business reporting	33	38.8
7.	Engaging customers in social activities	27	31.8
8.	Verification of contractors for the ethical conduct of business	13	15.3

*The respondent could give more than one answer

Source: author's research

* The assessments were made on Likert's scale (1 – unimportant, 2- not very important, 3- quite important, 4 – important, 5- very important)

Source: author's research

Fig. 1. **The criteria for selection of an employer by employees according to the respondents (in %)**

Among the many CSR activities towards the local community, the most visible was employee volunteering and the collaboration with local NGOs (in the second position). The rarely perceived actions included the free provision of premises, equipment, and services and the transfer of part of the profits from sales of products or services for social purposes.

The studied company had also taken socially responsible actions towards the environment. The relevant data are presented in Table 3.

Respondents noted that the company had initiated activities aimed at the reduction of waste production and promotion of waste segregation and monitoring as well as had implemented recommendations for saving electricity, paper, and recycling.

Data on the actions taken towards employees are presented in Table 4.

The study shows that DB Schenker employees noted a number of actions towards employees as a part of corporate social responsibility. The most commonly noticed include: conducting regular employee satisfaction surveys, preparation of wide offer of professional development, and funding of sports and cultural activities. The support for redundant workers was the least visible.

The study also sought answer to the question: what kind of socially responsible actions the company aimed at the market? Detailed data is provided in Table 5.

As for the actions towards the market, the respondents most often pointed to: innovative solutions and new technologies in the production and sales (90.6%). Such high awareness of this aspect results from the fact that the study covered employees from the executive board, therefore persons characterized by high creativity and innovation. More than three-quarters of respondents said that the company provides consumers with fair conditions of after-sales service and complaint procedures. The least noticeable action was verification of suppliers for ethical business conduct and engaging customers in social actions.

The main ways to inform stakeholder groups about the company's social practices included posting information on the website, corporate brochures and publishing social reports. The study also tested the importance of different criteria of selection of employer by the employees. Details on this are shown in Figure 1.

According to the respondents, the remuneration, development prospects and promotion opportunities were the most important criteria for making a choice of an employer. The company's engagement in social activities, its size, and brand were mostly marked "not very important".

Summary

1. The vast majority of DB Schenker employees were familiar with the concept of CSR, but their understanding was different. The younger workers identified corporate social responsibility with the company's engagement in contribution to society as well as the natural environment, while the older employees defined CSR mainly as transparency in business operations and compliance with applicable law.
2. Employees noticed more practices aimed at local communities and the environment. This is due to the large involvement of employees in volunteering and other social activities organized by DB Schenker for the local community and the environment.
3. The study shows that DB Schenker employees perceived a number of actions towards employees as a part of corporate social responsibility. The most commonly noted actions include: conducting regular employee satisfaction surveys, preparation of wide offer of professional development and funding of sports and cultural activities. However, it would be recommended for the company to expand the scope of assistance for employees who have been made redundant.
4. When choosing the employer, employees rather focus on the professional benefits, which can be achieved by working for this particular company, than engagement in social activities.

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DEFINITION AND MEASUREMENT OF OBJECTIVE QUALITY OF LIFE FOR ASSESSING THE LEVEL OF SUSTAINABLE DEVELOPMENT OF RURAL COMMUNITIES

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Abstract. The aim of the paper is the operationalisation of objective quality of life by identifying its indicators in six areas: economic activity, housing, children's education, participation in culture, using health care system services, and using social assistance. The different areas are described using characteristics available in the Polish public statistics of the Central Statistical Office. Some indicators can also be used to study the level of sustainable development in social area.
Key words: quality of life, objective quality of life, sustainable development.
JEL code: Q01

Introduction

Talking about the quality of life can be based on three main criteria that describe it: economic, statistical, and psychological (Ostasiewicz W., 2004). Based on this classification, seeking methods to measure the quality of life for local development one can focus on economic and statistical criteria. The reference to the characteristics of the quality of life in the context of sustainable development is due to the fact that sustainable development directly and indirectly influences the quality of life.

The aim of this study was to present some indicators of objective quality that can be used in the measurement of local sustainable development on the level of municipalities. Variables obtained from the public statistics conducted by the Polish Central Statistical Office were used to illustrate the phenomenon. The paper was prepared within the research project No. 2011/01/D/HS4/03927 entitled "Environmental Conditions and Factors of Development of the Economic Functions of Valuable Natural Areas of Lublin Voivodeship" funded by the National Science Centre.

The study of objective quality of life in Poland and abroad

The issue of quality of life is an issue that is of interest to a number of disciplines: sociology, psychology, economics, philosophy, and social statistics. This extremely broad interdisciplinary nature of quality of life is associated with multi-faceted expression of human self-realisation. B.Poskrobko defined the quality of life extremely vividly, as the relationships between values and lifestyles as well as needs and living conditions. He believes that the category can be objectified through physical and intangible indicators (Poskrobko B., 2007).

Another approach to defining the quality of life is shown by C.Bywalec and L.Rudnicki who suggest that "quality of life is a state of satisfaction, happiness, contentment, coming from the whole of existence, namely: the use of the natural environment, good health, success in life, social status, wealth, and consumption" (Bywalec C., Rudnicki L., 1999). This kind of approach indicates a significant role of household wealth as a factor determining the quality of life.

Citing T.Borys and P.Rogala, it should be noted that the very concept of quality of life is not fully sorted out. This is a peculiar problem for the quantification of the study indicators. The category of quality of life is one of the many used in literature, apart from it there are such terms as conditions of life, standard of living, standard of life, living standard, and other (Borys T., Rogala P., 2008).

The following criteria are included in the basics of typology of the quality of life - evaluation (assessment), the range and number of aspects of quality of life, objectivity of quality of life measurement, the number of objects concerned; immediacy of research links with the actual quality of life, sustainability of aspects of the quality of life, and revealing the system of values in quality of life (axiological criterion) (Borys T., Rogala P., 2008).

The subject of discussion in this paper is the third classification (the criterion of objectivity of the quality of life measurement).

Objective quality of life is "a set of qualitative objective facts (objective forms of satisfying human needs) describing various aspects of human life, that is, without a comparative or psychological assessment (Desk Research…, 2012). They mean the whole of objective infrastructural conditions in which people, social groups, households, or individuals exist (Rogala P., 2009). These conditions are mainly related with material condition, existential safety, and protection of individuals' living environments (Slaby T., 2007). Generally, available public statistics is used to determine objective quality of life (Rogala P., 2009).

Due to the complex nature it can be concluded that the quality of life is co-created by the following items: environment, material wealth, goods in the possession

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of the people, intangible wealth relating with the access to education and culture, health and safety (in the dimension of health – life threats, in the dimension of the loss of property – crime, natural disasters, in the economic dimension – funds necessary for the existence), participation in building local community, belonging, participation in the community, international relationships, influencing decisions related with individual, and collective life (Kusterka-Jefmanska M., 2010).

In the UK, the analysis of quality of life on the local level distinguish the following area profiles of quality of life: people and places, social cohesion and social engagement, public safety, culture and leisure, economic prosperity, education and lifelong learning, environment, health and social conditions, housing, transport and availability, and other indicators (Local Quality of Life Indicators ..., 2005).

As it has already been mentioned, the quality of life can have an objective and a subjective dimension. According to J. Rutkowski, the factors that shape the objective dimension include objective reality in which people live and the socio-economic and demographic structure of the studied population (Skrzypek E.).

Objective assessment of quality of life focuses on statistical measurement of selected characteristics. They can include such variables as income, education, and number of children (Kryk B.).

In the group of objective indicators of quality of life J. Trzebiatowski indicates material status, financial security, living and housing conditions, conditions of treatment, environmental safety, social relations, the system of social support, social activity, personal development (education, work, participation in culture), or recreation and leisure (Trzebiatowski J., 2011).

Measuring quality of life in the countries of the European Union encompassed the usage of three programmes. One of the programmes was the Urban Audit investigating objective quality of life by using 286 indicators of nine categories: demographics, social aspects, economic aspects, involvement/civic participation, education and training, environment, travel and transport, information society, and culture and recreation (Borys T., Rogala P., 2008).

The Urban Audit programme was performed by the Central Statistical Office, the project was initiated by the European Commission and Eurostat following its implementation (Central Statistical Office). The purpose of the Urban Audit programme is to assess the quality of life on the local level basing on comparable data on European cities, both in terms of objective quality of life ("conditions/level of life") and subjective quality (satisfaction with life - with its various aspects) (Borys T., Rogala P., 2008).

Among the studies on quality of life conducted in Poland, the research carried out within the project "Social Diagnosis" deserves special attention; it was organised by the Council for Social Monitoring with the School of Finance and Management. The research has been a panel one, carried out since 2000, taking into account important aspects of individual households and their members in economic dimension (e.g. income, material affluence, savings, loans) and non-economic one (e.g. education, treatment, coping with problems, stress, well-being, lifestyle, pathological behaviour, participation in culture, the use of modern communication technologies, and many others) (Czapinski J., Panek T., 2009).

J. Czapinski participating in these studies, together with the team, distinguished a group of areas where one can speak about the objective quality of life: economic activity (functioning in the labour market), income situation and the way of income management, food, material wealth, housing, use of social assistance, children's education, participation in culture and leisure, using health care system services, insurance and retirement safety, ecological attitudes etc. (Czapinski J., Panek T., 2009).

In addition to the above-mentioned studies, others are being carried out in order to test the quality of life in the country. Those include research conducted by the Public Opinion Research Centre, the aim of which is to analyse different aspects of society, directly or indirectly related with the quality of life.

The issue of quality of life is also the subject of research carried out on the local level. Studies of this type were carried out in the city of Poznan, the first in 2002, followed by others in 2003, 2004, 2006, 2008, and 2010. They were initiated by the City Office and were initially carried out by the Faculty of Social Sciences at the Adam Mickiewicz University in Poznan. The Quality of Life Research Centre was established in the later period (www.poznan.pl). Other cities that have carried out research on the quality of life of inhabitants are Sopot, Gliwice, and Jaworzno (Rogala P., 2007).

Sustainable development and objective quality of life

Defining the term sustainable development is a complex issue. In literature, there is a number of definitions of the term, and thus, it is important to read them carefully. The first definition of sustainable development is presented in the report "Our Common Future" (known as the Brundtland Report, from the name of the Prime Minister of Norway, the Chair of the Working Group). According to this definition, "sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Report of the World Commission ...). The first Polish definition of sustainable development was published in the report "Eco-development in Poland" in 1992. According to the definition, sustainable development also known as eco-development "... is where people provide for limitations due to the finite character of the Planet and the rhythm of nature independent of human (...). It is a strategy for achieving dignified life within what is physically and biologically possible. It guarantees meeting basic needs of present and future generations, while maintaining the stability of the natural environment and natural diversity of both species ... and ecosystems "(Report of Polish Environmental ..., 1992).

Over the years, definitions and approaches to the issue of sustainable development have undergone changes. Initially, the dominant eco-friendly trend and discussions focused on the issues of limited natural resources turned to the socio-economic issues. One of the definitions of this type is the definition of D.Dunphy, J.Benveniste, A.Griffiths, P. Sutton, according to which,

sustainable development includes economic and social development models. These models protect environment and are designed to enhance social justice (Dunphy D. et al, 2000). A kind of essence of the definition of sustainable development is captured by A.Kassenberg who indicates that in any decision equal treatment of social, economic and environmental issues should be sought in order to create a platform for the three elements, and not to be limited to a simple compromise (Kassenberg A., 2007).

In Polish legislation, sustainable development is understood as "such a socio-economic development, in which the process of integrating political, economic and social activities takes place, with keeping balance of nature and the durability of basic natural processes in order to ensure the ability to meet basic needs of communities and citizens of both the present and future generations" (The Environmental Protection Law..., 2008).

Sustainable development - understood as a concept - is defined as "sustainable improvement in the quality of life of present and future generations through the development of an appropriate balance between the three capitals: economic, human, and natural" (Piontek F., Piontek B., 2009). D.Pearce, A.Markandya, E.Barbier draw attention to the quality of life in the definition of sustainable development, they indicate that SD includes creating a socio-economic system. A system that provides support for such purposes as real income growth, improving education, improving health - that is, generalising, quality of life (Pearce D. et al, 1989).

Quality of life depends on environmental, social, and economic conditions. Sustainable development implies a balance between them in shaping the quality of life (Sustainable Development..., 2009).

Characteristics common to the changes in the development of quality of life and sustainable development are reflected in ever more revealing relation to the indicator description. Indicators describing sustainable development at the same time depict objective quality of life (Borys T., Rogala P., 2008). An example is the "number of flats per capita" being an indicator of sustainable development as well as an indicator of objective quality of life.

Indicators of objective quality of life

As it has previously been mentioned, the quality of life can be analysed and studied in different ways. While seeking indicators allowing to analyse its characteristics the classification of J.Czapinski deserves special attention. Basing on the areas highlighted by this author, attempts were made to search for indicators relating to objective quality of life available in the public statistics on the level of municipalities (NUTS 5). Among the areas identified by J.Czapinski, six, for which such data are available, were the focus: economic activity (functioning in the labour market), housing, social security benefits, children's education, participation in culture and recreation, and the use of health care system services.

One of the key areas of sustainable development is human capital. The theory of human capital refers to certain attributes, characteristics of people such as education, training, skills, and experience. These characteristics are a great advantage in the workplace, at work (Worsley J.D., Stone Ch.F. 2011). Referring to the above-mentioned classification of objective quality of life, it can be observed that some of the indicators describing the objective quality of life are indirectly related with the issue of human capital, among them **economic activity** defined as functioning in the labour market can be mentioned. The following characteristics can be used to illustrate the area.

One of the variables is the percentage of the working age population which indicates the participation of a group of people aged 18-59 for women and 18-64 for men in the total population of municipalities. It is a measure defining potential labour force (Kotowska I.E., Matysiak A., 2007). The appropriate size of the resource of working age population shows correct proportions between this group and the rest of the human resources involved in the distribution of national income. This indicator is a stimulant (S).

Another variable that describes the economic activity in the labour market is the intensity of unemployment. This figure shows the share of the registered unemployed in the population of working age population (D-destimulant).

One of the most important indicators of standards of living are **living conditions**. Apartment is the most important part of the household - its condition and equipment largely indicate the position of assets, level of income, and wealth status.

The factors allowing using a flat are, among others, its standard, its size (floor space, number of rooms), equipment in technical and sanitary installations, technical condition etc. (Gutkowska K. et al, 2001). The statistics of the Central Statistical Office among the data allowing the analysis of housing conditions include such variables as total housing stock per 1 inhabitant (S), average floor space in m^2 per 1 person (S), and the percentage of housing stock with access to infrastructure (water supply, lavatory, gas, bathroom, central heating) (S).

One of the important demographic variables characterising society, and thus, households, is the level of education of its members. This level affects the quality of human capital and becomes the foundation of development (Klodzinski M., 2005). For the analysis of the **children's education** with reference to the objective quality of life, the following variables can be taken into account: number of children aged 3-6 per 1 kindergarten (D) - the higher the value, the lower the availability of kindergartens and the more overcrowded they are; primary schools per number of children in early school age - 7-12 (S); gymnasiums per number of children aged 13-15 (S); students per 1 computer with Internet access intended for the students' use - in elementary schools for children and young people excluding special ones (D); students per 1 computer with Internet access intended for the students' use - in gymnasiums for children and young people excluding special ones (D) - the higher the value of the latter two indicators, the more difficult is the access to the Internet.

Quality of life is affected not only by the tangible aspect of social welfare; social activity is also very important,

it can be analysed in relation with **participation in culture**. Participation in culture and recreation is one of the areas analysed for the objective quality of life. One of the indicators describing it is the number of libraries per one thousand inhabitants (S). Libraries are complementary to education system. They also play a supporting role in the dissemination of knowledge and culture. Both the resource of a rural library as well as the appropriate organisation and management of it through organising cultural events make it have an impact on the inhabitants' quality of life (Ossowska L., Poczta W., 2009). Other indicators describing the objective quality of life in terms of participation in culture and leisure are: book collection per 1000 people (S); computers connected to the Internet available to readers in libraries and library facilities per 1000 people (S), sports facilities per 1000 people (S), the number of houses and cultural centres, clubs and community centres per 1000 people (S), the number of events organised by cultural centres, clubs and community centres per 1000 people (S), the number of artistic groups acting in houses and cultural centres, clubs and community centres per 1000 people (S), members of associations/clubs in the general population (in %) (S), and members of artistic groups in the general population (in%) (S).

The healthcare system in Poland has undergone numerous transformations and reforms over the past 20 years. These reforms combined with social and economic changes have caused changes deepening in the overall state of health of society and the state of health service (Ossowska L., Poczta W., 2009). This area is extremely important for the analysis of quality of life in society. For discussing the objective quality of life in terms of **using the health care system services** among the variables available in the CSO, the following indicators are included: number of people per a public pharmacy (D); number of people per a health care facility (D); number of people per medical practice in rural areas (D) - the higher the ratio, the lower availability; the number of pharmacies and pharmacy outlets (S); and municipal budget expenditure on health care per capita (PLN) (S). The use of these indicators allows analysing the availability of facilities and health care entities in individual municipalities.

In the case of achieving low income in households, the quality of life is directly influenced by funds obtained through social assistance. Social assistance is an institution of social policy. The main objectives of social assistance, among others, are to support individuals and families in difficult circumstances, to provide income on the level of social intervention (for those who have no income or low-income, in retirement age and disabled people, individuals and families with low income requiring temporary support), creating a network of social services adequate to the needs in the area. Areas of social welfare, among others, are: awarding and payment of benefits, implementing tasks resulting from social needs, developing new forms of social support and self-help within the identified needs (http://www.mpips.gov.pl).

In order to analyse the objective quality of life within **the use of social assistance,** the following features can be subjected to analysis: the share of people in households benefiting from social assistance in the general population (D) - the greater it is, the more difficult is the financial situation of households; and municipal budget expenditure for social assistance per capita (S).

The increase in quality of life of society is one of the objectives of sustainable development. The indicators discussed directly or indirectly affect the quality of life of society.

Conclusions

Sustainable development, the issue and its objectives are of interest to many fields of science, this is due to its interdisciplinary nature. Defining the concept of sustainable development one should pay special attention to issues related to the quality of life; quality of life of both present and future generations.

Quality of life can be analysed in objective and subjective aspects. Objective character of the quality of life is associated with pointing out factors possible to be depicted and characteristics derived from mass statistics. The mass nature of empirical data is extremely important due to the fact that these features can at the same time be specific indicators of sustainable development. The above study identifies six areas of analysis of the objective quality of life operationalised with the usage of indicators available in the statistics collected by the Polish Central Statistical Office. All of them can at the same time provide indicators of sustainable development in the social area.

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WATER MANAGEMENT AND WATER HARVESTING: HOW TO OVERCOME CONSTRAINTS IN COMMUNITY GARDENING IN SEMI-ARID MALI

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Abstract. Malnutrition, i.e. the undersupply of micro-nutrients, is a common phenomenon in the villages of West African Mali. Community gardening can help to overcome the gap between supply of and requirements for micro-nutrients. In addition to its effect on nutrition, community gardening supports the pro-poor orientation of economic growth, and has a potentially positive effect on human capital formation, communal coherence, and women's empowerment. Water supply, however, is a major bottleneck for gardening in the Sahel zone. Based on a field survey using a "rapid rural appraisal"-inspired research method, the paper develops the argument for a de-linking of irrigation from deep wells (water mining) and argues in favour of a combination of water harvesting techniques and substantial improvements of the gardens' micro-climate in a low external input yet technically appropriately sophisticated cultivation. The paper furthermore discusses traditional forms of social organisation and how to make them instrumental in supporting the new system.
Key words: malnutrition, horticulture, water harvesting, development assistance, gender relations
JEL code: O13, O22, O33, Q16, Q25, Q54, Q57

Introduction

Over the past decades Mali's semi-arid area, part of the Sahel region, has experienced a sizable population increase, in relation to which regional rain-fed grain production is becoming increasingly insufficient. Commercial food imports from other regions in exchange for exports of labour and livestock cannot make up for the regional food deficit. To our understanding Mali's future will be decided in the rural areas. Supporting rural dwellers in producing more food of their own can be of relevance to reduce push factors of migration in a country which already faces a number of nationwide imbalances, including one of the world's highest urbanization rates and an extremely low rate of job creation in manufacturing.

We hypothesize that irrigation-based horticulture can contribute to bridging the gap between nutritional needs and food supply and to overcoming the undersupply of micro-nutrients, the "hidden hunger". However, access to water is the most important bottleneck of any food production in the Sahel zone: Not only has the rising human population but also the increase in transhumant livestock rearing put an immense strain on local water resources. We assume, however, that in contrast to water mining by means of deep wells which rapidly depletes limited water resources, rigorous water management and sophisticated water harvesting techniques can transitorily balance out supply of and demand for water (while in the long run population control and a substantial amount of non-agricultural economic activities are indispensable).

This paper provides a case study analysis of an NGO-assisted community garden organized by women in the village of D*** (region of Koulikoro). In a dead-end situation whereby the community garden had been abandoned by the village women apparently due to a lack of water, the NGO commissioned an interdisciplinary team of three researchers (agronomist, cultural anthropologist, and economist) to suggest a way out. Information was gathered by the research team inter alia during a field trip to the village of D*** in March / April 2012. By applying a "rapid rural appraisal"-inspired research method (FAO, n.d.), the team aimed at analysing the underlying causes for the interlocutory failure of the community garden and developing a blueprint for sustainable management of water resources and horticulture. As such, this study is essentially application-oriented research.

Research results and discussion

1. Overview

West African Mali is one of the world's poorest countries, ranking 175 out of 186 countries in the UNDP's 2011 Human Development Index as well as in the Multidimensional Poverty Index (UNDP, 2011). About half of its 14+ million population lives below the international poverty line of USD 1.25 per day. With a food consumption of 2,624 kcal/capita/day (data of 2009; FAOSTAT database) based on national production and on some food imports, the country on average still has only little more food available than what is considered to be the borderline to hunger (an average of 2,500 kcal per day), even if there has been some remarkable progress in terms of food security since the turn of the millennium. In 2010-12, however, 8% of the total population was still undernourished and one third of children under five were underweight (FAO, Food Security Indicators).

Agriculture is Mali's key industry. It provides employment for about 70% of the labour force and

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accounts for 37% of its GDP (data of 2006; World Development Indicators, 2013). Seasonal unemployment in agriculture is common and lasts four to seven months per year, and is twice as common for women as for men (MEFP/ANPE, 2007, p. 30). Therefore, poverty affects three quarters of the rural population vis-à-vis one third of the urban population. Significant differences in the incidence of poverty also exist between the South and the North of Mali, reflecting inter alia different agricultural conditions and the respective distance from the relatively more affluent capital, Bamako, and its opportunities to market labour and farm products.

The long-term average annual rainfall in the area under investigation is about 450 mm. Apart from substantial year-to-year divergence, precipitation occasionally (as in 2011) seems to deviate from the usual seasonal pattern – a fact which is seriously detrimental for the crops. That said, however, in relation to the whole region, the village of D*** is favoured with regard to access to water thanks to its location at the confluence of three wadis, water-bearing during the rainy season and then draining into a depression ("mare") on the edge of the village and forming a lake usually still existent at the beginning of the dry season.

The village area consists of a core village with a population of about 600, living in 35 extended families of different size (up to 60 people), of which about 10% are temporary out-migrants. An extended family may consist of a man and up to four wives, adult sons and their wives, and occasionally other relatives. Associated with the core village is a satellite village where several families of descendants of former slaves live, while a number of nomadic families live in the outskirts of the core village. The annual population growth in the county, where the village is located is 3.2% (which is one of the highest in the world).

Livestock in the village area can be estimated to be 300+ bovines in addition to donkeys, horses, sheep, goats, and poultry. Livestock keeping is predominantly the responsibility of men. Annual livestock growth in Mali (compound annual growth rate, 2000 to 2010) is 4.4% for cattle and 5.7% for goats (computed from FAOSTAT data). As in other parts of the Sahel, excessive deforestation for firewood and fencing, soil compaction around the wells where animals are watered, the overuse of trees and shrubs for forage and a drop in the water table due to excessive water extraction all lead to decreasing biodiversity and eventually desertification. Actually, this is a situation rightly termed the "tragedy of (unmanaged) commons" (Hardin, 1968; Hardin, 1994), where the herder receives all of the proceeds from each additional animal while the pasture is slightly (for the individual almost imperceptibly) degraded by each additional animal. Humans, animals, and plants are thus in an ever-fiercer competition for water.

Regarding field cropping, a distinction has to be made between fields farmed by women and fields farmed by men. As a rule, crops on fields cultivated by women are more diversified; and sometimes a small part of the harvest from these fields – in contrast to the harvest from the men's fields – is traded at the markets of near-by villages. Millet (*Pennisetum glaucum*), occasionally intercropped with Sorghum, Peanuts, Okra, and Maize, is grown in a shifting cultivation mode on rainfed fields. In addition, some vegetables are grown in small compound gardens of which the elder women in the compound are in charge. Irrigation of these gardens is from nearby water holes by watering cans.

Over a number of years the village has been supported by a German-Malian NGO with various types of infrastructure assistance, including a school, an infirmary, and a grain mill. To improve food supply and to provide village women with an additional income source by marketing self-grown vegetables, the NGO has assisted the village of D*** in setting up a two-hectare communal garden, including the drilling of a deep well for irrigation in 2009. Apart from providing water for the communal garden, the well was also meant to provide the village population with uncontaminated drinking water. In addition to the well, the NGO provided assets such as simple tools, a wire mesh fence to protect the garden from goats, and also training for the gardeners. In the beginning, work in the community garden was "collective", but later on the women's association decided to work in four groups organized according to sub-ethnic divisions.

2. The rationale for community gardening

Community gardening in villages such as D*** does make sense for five reasons: the improvement of nutrition, the availability of cheap labour (in terms of opportunity costs) during the vegetation period of vegetables, the pro-poor effect, the improvement of the available human capital, and the strengthening of the social coherence of the village and the empowerment of the village women.

(1) Estimates suggest that nutrition in Sub-Saharan on average covers only 43% of the requirements for micro-nutrients (World Vegetable Center, n.d.). This "hidden hunger" is particularly pronounced in areas where agriculture is not sufficiently diversified and extra-regional trade links are poorly developed as well as among the poorer strata of society. A household-based health survey in Mali shows that in the country's capital 51% of the children between 6 and 23 months were fed fruits and vegetables rich in vitamin A (such as carrots, sweet potatoes, vegetables with green leafs, and pumpkins) – whereas this was the case for only 28% of children in the region of Koulikoro (where the village of D*** is located). Among the households of the richest quintile of Malian society, 45% provide their young children with food rich in vitamin A, while only 26% of the poorest quintile can do so (République du Mali …, 2007, p. 166).

An example shows the potential contribution of gardening to overcome the hidden hunger in D*** village: Calculations based on FAO and USAID data suggest that 18 tons of tomatoes can be produced on one hectare. As 100g of tomatoes provide 5% of the USDA's vitamin A intake recommendation for adults, tomatoes harvested on one half of the community garden would completely bridge the gap between actual intake and requirement of vitamin A for the whole village population for more than a month.

(2) Work in a community garden implies only minor opportunity costs for women: Time competition between work on the millet fields and gardening is very limited. In the area under investigation, the rainy season is from May to October, while the dry season is from November

to April. Preparation of fields for vegetable cultivation has to start in October. Thus, there is some overlapping with the millet harvesting until December. From January to March, however, no work is required on the millet fields and women are free to work in the garden, apart from cooking, as preparing meals is the responsibility of a compound's younger women who alternate with each other. Furthermore, only (young) men, not women, migrate from this area during the dry season in search of waged labour in other regions such as the country's capital. Thus, apart from gardening, village women would have hardly any alternative income sources.

(3) Labour-intensive gardening provides more food security especially for those families which do not possess large amounts of land or livestock – i.e. those most vulnerable with respect to a decline in food production. Gardening thus becomes instrumental in a pro-poor growth strategy. Our village survey (following a method proposed by Dixon and Holt, 2010) shows that 70% of the families are "poor", 20% are middle class, and 10% are "wealthy" by local standards, i.e. measured with the yardstick of family size (i.e. availability of labour force) and ownership of large livestock (a proxy for property of both capital and land).

(4) As will be described below in more detail, gardening based on a low level of external input but on more sophisticated cultivation and irrigation techniques provides opportunities to develop extra-agricultural skills (or human capital) for young men and qualifies them for relatively more rewarding jobs than those usually taken up by unskilled migrants.

(5) Finally, under certain conditions communal gardens – publicly functioning in terms of ownership, access, and management – can strengthen the villages' coherence and allow for a proper managing of the commons (see Hardin, 1994; Ostrom, 1990). Run by the village women, communal gardening also strengthens the position of women in terms of income generation and social and political empowerment and thus supports a more comprehensive and gender-balanced approach to development.

However, as water is scarce and irrigation is a conditio sine qua non for gardening in the Sahel zone, the prudent use of water is imperative. The sources of water in the village of D*** and their current management will be discussed in the next section.

3. Current management of water supply and demand

The water available in D*** is from three different sources of different qualities: water-holes, an old deep well, and a newly drilled deep well.

(1) At the end of the dry season a number of several-meter-deep wood-fortified water holes are dug on the ground of the depression (the "mare"). Water from these holes, however, is suitable only for watering animals. Supply of water from this source implies fixed costs due to the time spent digging the hole and the wood to fortify it. Once the water hole has been dug, apart from working time to fetch the water by human muscle power, no marginal costs accrue. In spite of the region generally reporting serious water shortage in March 2012, some of the holes on the ground of the depression were still water-bearing, but most holes were not in use.

(2) In addition to these water holes, a several-year old concrete-fortified, donkey-power operated deep well (about 1 km outside of the village) exists. It usually supplies water all-year round. Water from this source was also used as drinking water for the core village and the nomads before a new deep well was drilled by the NGO. After that, water from the old well was used only for watering the herds in the custody of the nomads and as drinking water for the nomads. Presently, no depreciation on fixed costs has to be considered as the well had been built years ago from external funds. The marginal costs imply only the working time spent fetching the water; no fees are imposed. Again, in 2012 the supply of water from this well was limited and allowed the herds to be watered only once or twice a day.

(3) Finally, there is the newly drilled solar pump-equipped deep well (depth 40 m) outside of the core village. From here, two water pipes run to the NGO-supported communal garden and to the brink of the core village. Water from the NGO-drilled well is best suited as drinking water for humans. The NGO indicated that due to the use of this water, the number of water-borne diseases (such as diarrhoea) especially amongst children had decreased significantly. As the NGO paid the bulk of the drilling costs of this well, the contribution of the village community to the fixed costs was only minimal. At the time of our field survey, consumption of water from this source was priced by the village's water committee according to a family-based flat rate, irrespective of the size of the family. Per person, an average of about 11 litres of water per day was taken from the well for drinking water as well as for personal hygiene and household-related purposes (like washing clothes). The nomads and the inhabitants of the satellite village are refused access to this water by the inhabitants of the core village. At the beginning of the communal gardening, water from this well was used for irrigation. During the drought of 2011, however, the village elders vetoed this practice due to a decreasing yield of the well.

4. New ways of water management

Contrary to a widely-held opinion in the media, however, the drought of 2011 was no "rare occurrence" in the village area. In fact, data for the average of all Sahelian measuring stations reveal that out of the 2000 to 2010 period, five years had a higher precipitation than in 2011, yet five years even had a lower precipitation (JISAO, 2012) – although the temporal distribution of rains was particularly adverse for the crops in 2011 (FAO, 2012). In any case, this warns against considering the de-linking of the D*** communal garden from the deep well to be an exception; it rather suggests that water shortages for the communal garden are an expectable phenomenon. Therefore, the opening up of an alternative water supply for the garden becomes imperative. This new model has three distinct features: water harvesting replacing water mining, improvement of the micro-climate in the garden, and introducing a new fee system for drinking water.

(1) Making use of the favourable situation of the communal garden adjacent to a wadi, water streaming down the wadi in the rainy season can be collected. This water harvesting is intended to be facilitated through

construction of, initially, one larger open cistern of 260 m^3 directly filled by the rain water passing at the lowest point of the garden area at wadi level. The cistern is to be wire meshed and covered with leafy branches to curtail as much evaporation as possible. Additional water can be drawn from shallow wells already in existence. From the cistern and the wells the water can be distributed to the fields either by watering cans or hand pumps. On-the-job learning to construct a cistern provides an opportunity for (young) men to develop skills also in high demand in other trades.

(2) The micro-climate in the garden has to be systematically improved in order to reduce evapotranspiration. Instrumental in protecting against strong winds and sun are hedges as well as scrubs on plot margins. For the hedge, a number of locally growing scrubs and trees are appropriate. Dividing the garden into smaller plots allows for additional planting of scrubs (such as *Cajanus Cajan*) on the plot margins. All this contributes to an increased humidity in the garden, which reduces the water required for cultivating the vegetable. To further diminish watering requirements, ridging need to be applied in all areas under cultivation. Ridges are better suited for rain water storage and for protection against rain water erosion in sloping areas than the "zaï" technique usually advocated for the Sahel area. In addition, fallow-periods need to be introduced, alternating between the plots and using legumes as intermediate crops.

The community gardeners will also be trained with respect to the selection of plants as well as how to successively improve the micro-climate and to make best use of the surface water. For the regular and secure supply of feasible and ecologically well-suited plants required for hedges and for agricultural production, a nursery field and a seedbed will be established directly at the cistern. A compost plant next to these two facilities will help to minimize the application of industrial fertilizer. In addition, the application of moist compost for fertilization will assist the improvement of the micro-climate in the plots.

(3) Finally, the present flat-rate system of fees for drinking water needs to be replaced by a system pricing the quantity of water consumed and thus providing incentives to use expensive uncontaminated water for drinking purposes only while making the effort to walk to the old deep well for water for household purposes. We assume that the total amount of water available in the area remains the same as a result of the interconnection of all sources. It has to be taken into consideration, however, that this implies a trade-off between the aim of freeing women from unnecessary work and using natural resources differentiated according to their qualities. On the other hand it is imperative to grant access to the uncontaminated water from the new well for both the nomads and the inhabitants of the satellite village. Given the intense social communication between the core village, the satellite village, and the nomads, water-borne diseases will not stop at the entrance of the core village.

5. New ways of social organisation

Enlarging the nutritional basis by introducing a community garden is a social and economic innovation in a truly Schumpeterian sense. To be successful, an innovation has to be linked to routinized behaviour but routines also need to be adapted to new conditions. With respect to the community garden, several forms of social organisation have to be considered in this respect, including the transfer of knowledge in horticulture, the organisation of co-operation, and the gendered division of labour.

(1) According to the compound-specific division of labour, the obligation to prepare meals for the whole compound alternates between the (up to four) wives of the head of the family. Older women may transfer this obligation to their daughter-in-law. The small compound gardens, however, are under the auspices of the older women, who are thus the local experts in horticulture. They also introduce the younger married women to the basic horticultural knowledge and skills. Gardening thus represents a female sphere of local knowledge production which is transferred from the older to the younger generation within kin-relations of alliance (not from mother to daughter, but from elder wife to younger wife). This is inter alia reflected in the fact that in the village of D*** the women's group is chaired by an elderly lady, clearly an expert in horticulture, and assisted by younger women able to read and write in French. Seniority is the dominant feature in gaining status and thus needs to be respected in all agricultural extension activities.

(2) The village women's association running the community garden in D*** includes about 80 participants (among them women from the satellite villages, but not from the nomadic population). For the purpose of dividing the right to access to water for the plants in the time of the drought and to assist each other in the vegetation period, the association divided themselves into four subgroups according to sub-ethnic or patronymic affiliation (i.e. to their kin of origin). This type of self-organization according to traditional sub-structures needs to be strengthened in the process of introducing a new system of organisation of cultivating the community garden, as it may enhance participatory involvement on an individual or subgroup level. Furthermore, it supports the division of the garden into smaller units, which is instrumental for the improvement of the micro-climate. Nevertheless, an external authority or coordinator of the group seems to be instrumental when re-organizing the community garden to facilitate communication with external players, such as funding agencies, especially in times of water shortages or other types of crises. This person (whether male or female) could also take responsibility for change management. The social organisation of cooperation proposed by the authors of the present study to accompany the technical changes in the water management and cultivation system is thus a mixture of the egalitarian collective approach taken in the early stages of the community garden project, the traditional type of sub-ethnically based organisation of the village, and a type of "rational" organisation according to the Western model.

(3) During the rainy season both men and women in the village are occupied with cultivating millet and other crops on their fields. While each gender bears the sole responsibility for the results of its work, men and women share their food within the extended families of

the compound to the benefit of all. By contrast, during the dry season only women seek to compensate their "free" time by gardening and contribute to a wider range of food for all, whereas men are more or less unemployed apart from taking care of the animals (in the core village) or temporary migration (from the satellite village). The availability of male labour at only low opportunity costs during the dry season suggests itself for assisting the women in the community garden by taking on tasks such as transport of stones to the building site of the cistern, fixing stones, planting hedges, transporting water, and cleaning the cisterns. It is obvious that by these strategies of involving men in the newly emerging activities of the community garden, there will also be changes in everyday relations between men and women and their established status. Nevertheless, it has to be emphasized that these changes will match the existing principles of a gendered division of labour. It is also instructive to know that in a different horticultural project for women in the same region, local *male* leaders were in charge of the organization and accepted by the female participants due to their legitimization by the NGO as principal teachers from the outset of the project in order to train the women adequately and continuously. This continuity of highly skilled supervision seems to have contributed to the long-term success of the whole project.

All in all, to our understanding this new type of social organisation – both based on traditional features and adjusted to new needs – lays the foundation towards a more sustainable way of governing commons (see Ostrom 1990, Nutzinger 2010).

Conclusions, proposals, recommendations

1. Community gardening in the Sahel area makes sense for five reasons: It improves the supply of micro-nutrients; it makes use of labour available at very low opportunity costs; it has a pro-poor effect; it improves human capital; and it strengthens the social coherence of the village and contributes to the empowerment of the village women.
2. As drought in the Sahel zone is the rule rather than the exception and competition for water increases, a community garden will only persist if an additional source of water can be tapped – the surface water available during the rainy season.
3. In addition to water harvesting techniques, improvements of the micro-climate in the gardens are imperative. Instrumental for improving the micro-climate are hedges, scrubs planted on the edges of small plots, and planting in ridges (an equivalent to the much-propagated zaï-technique modified for sloping fields).
4. The social organisation of the garden needs to build on traditional features and develop them into a system more favourable to governing a common resource. This pertains to the transfer of knowledge in horticulture, the organisation of co-operation, and the gendered division of labour.

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LESS FAVOURED AREA PAYMENTS IN THE REGIONS OF LATVIA

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Abstract. Support for farming in less-favoured areas (LFA) is one of the instruments of the Common Agricultural policy (CAP) of the European Union (EU) to preserve the farming population in these areas and maintain cultural landscapes for more than 30 years. In 2014, eligibility criteria for receiving LFA payments will be revised; therefore, it is important to assess the results of its introduction in the Member States. In Latvia, LFA support is available since the accession to the EU, and no extensive researches on this support are available. The **aim** of the present research is to analyse the LFA payments in the regions of Latvia for the period 2004-2010. Over the period of analysis, farmers in Latvia received an LFA funding of LVL[2] 210 million, which comprised a significant share of the total amount of support payments for agricultural and rural development. The distribution of this support among the regions is different, as Latgale received 39.1% of the LFA support, Vidzeme – 26.7%, and Kurzeme –16.7%, thus being a significant source of income for farmers in these regions. Over the period of analysis, the amount of LFA support was relatively stable in terms of total amount and per hectare of area declared for this support. The rates of other area payments increased, thus reducing the significance of LFA support. In the research, using several sources of information, the authors have analysed various LFA support aspects in the regions of Latvia.
Keywords: less-favoured areas, support, regions.
JEL code: Q18, Q 58.

Introduction

In 1975, the establishment of support for farming in LFA marked a major change in the nature of the EU CAP by introducing regional categories. From the very beginning, LFA policy was conceived as a structural policy aimed at the prevention of land abandonment, to preserve the farming population in these areas and maintain cultural landscapes. Presently, the LFA scheme also provides a substantial contribution to farm income (Dax, 2005). D.Klepacka-Kolodziejska (2006) points that over the 30 years since it was established the LFA measure has never been thoroughly assessed; it has only been expanded. This shows that LFA is largely a political measure and is now very difficult to reform. It is of great importance under conditions when growing population numbers, limited infrastructure and market access, land tenure problems as well as increasing degradation problems due to poor management of soils prone to erosion, steep slopes, or low rainfall quantities are some of the limitations for agricultural production that have led in many areas to growing numbers of poor people (Lipper et al., 2006).

One has to agree with M. Stolbova's (2007) opinion that "support to European agriculture should focus on the preservation of the typical European countryside, production of healthy food, protection of the environment, and the maintenance of the countryside as a residential environment". Scientists of other EU countries admit that the patterns of use of the LFA measure also reflect differences in geography and policy history. The measure has limited significance to intensively farmed countries such as Denmark and the Netherlands. It has traditionally been used to help maintaining farming in areas of extensive rough grazing in countries such as Ireland or the United Kingdom or mountainous areas such as in France, Greece, or Austria. There have also been much higher levels of take-up and financial support for LFAs in northern Europe than in southern Europe (Dwyer et al., 2003). Long experience with LFA payments in Austria has demonstrated their positive impact on the continuation of land use in LFAs (Tamme, 2004). The main purpose of the Dutch LFA policy is to compensate farm businesses for negative economic effects due to the conservation of natural handicaps (Schouten et al., 2009). The LFA scheme aims to respond to the widely divergent regional situation of the EU agriculture, with respect to both the socio-economic and natural characteristics of regions (Shigeto et al., 2007).

In Latvia, several scientists have researched CAP instruments and their operation in the regions of Latvia, for instance, E.Balamou, D.Saktina, W.H.Meyers (2009), I.Upite (2010), I.Pilvere (2012a, 2012b), I.Pilvere, I.Upite, V.Tetere (2012) et al., however, research on LFA support and its role in the regions has not been performed. Therefore, especially in the light of the discussion on LFA support in the EU Member States and the revision of this policy in 2014, it is important to assess the results of previous support. Therefore, the **aim** of the present research is to analyse the LFA payments in the regions of Latvia for the period 2004-2010.

In accordance with this aim, the following research **tasks** were defined:
— to characterize LFA support in Latvia;
— to analyse LFA support in the regions of Latvia, based on various information sources.

To tackle the research tasks, the authors employed analysis, synthesis, and the logical and constructive **methods**. The present research analysed **information and data** from the Rural Support Service (RSS), which

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[2] Latvian lats. 1 LVL=0.702804 EUR

Table 1

Characteristics of LFA support in Latvia, LVL

Kind of support	2004	2005	2006	2007	2008	2009	2010	Total
LFA, thou. LVL	27492.4	35041.4	37181.7	30040.9	26930.6	27397.8	26375.9	210460.7
RDP AP*, thou. LVL	27492.4	45428.3	62019.7	52842.7	52491.6	54164.5	55088.8	349528.0
SAP*, thou. LVL	17440.7	26706.5	33648.3	39014.3	49143.4	59010.3	67166.9	292130.4
Support for agricultural and rural development, mln LVL	110.5	219.6	213.3	191.5	299.3	293	369.6	1696.8
LFA share in total financial support, %	24.9	16.0	17.4	15.7	9.0	9.4	7.1	12.4
LFA share in RDP AP, %	100.0	77.1	60.0	56.8	51.3	50.6	47.9	60.2
LFA/SAPS, %	157.6	131.2	110.5	77.0	54.8	46.4	39.3	72.0

** RDP AP – RDP area payments; SAP – Single Area Payment*

Source: author's calculations based on the LSIAE database, 2012, LAD, 2011, Pilvere, 2012 b

administrates various support measures and the Latvian State Institute of Agrarian Economics (LSIAE) database information on Rural Development Programme (RDP) support measures. The research design process used special and general literature, methodological materials on the EU financial support for agriculture and rural development etc. To specify the effect of support payments on the economy of farms in various regions of Latvia, the authors exploited the Farm Accountancy Data Network (FADN). The FADN is a survey carried out by the Member States of the EU. It was established in 1965 in accordance with Regulation No 79/65 of the Council of 15 June 1965 setting up a network for the collection of data on the incomes and business operation of agricultural holdings in the European Economic Community. The target size of the sample for the FADN in Latvia is 1000 farms (Bratka, Praulins, 2007). In the EU, the FADN data are classified by region, using the territorial division in accordance with the Nomenclature of Territorial Units for Statistics (NUTS) classification. There are different numbers of regions in the countries, for instance, 22 regions in France, whereas the smallest EU member countries (Austria, Belgium, Denmark, Ireland, Luxembourg, and the Netherlands) are not divided into regions, although these countries often classify their territory according to certain features for their domestic needs. In Latvia, the following administrative and territorial division exists in accordance with the NUTS classification: the whole territory of the country corresponds to Level 1 and Level 2, there are six regions at Level 3: Riga, Pieriga, Vidzeme, Kurzeme, Zemgale, and Latgale which consist of administrative units – municipalities. Level 3 is used for the FADN needs; however, for the EU FADN needs, Latvia is regarded as one region owing to the small territory of it (LVAEI, 2010).

Research results and discussion

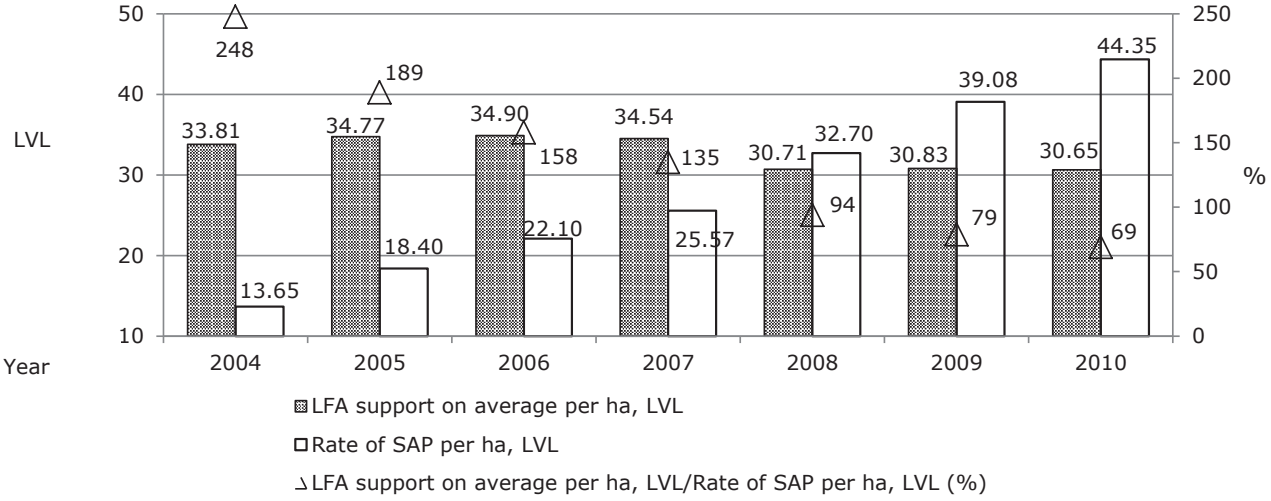
1. Characteristics of LFA support

The LFA scheme is a part of Axis 2 of the Rural Development Policy for 2007-2013, which aims at improving the environment and the countryside by supporting sustainable land management (European Commission, 2012).

In Latvia after its accession to the EU on 1 May 2004, the measure "Less-favoured areas and areas with environmental restrictions" under the Rural Development Plan 2004-2006 became available (Latvijas lauku attistibas…, 2004). The implementation of the measure was also continued within the RDP 2007-2013 as the measure "Payments to farmers in areas with handicaps, other than mountain areas" (hereinafter - LFAs) (Latvijas lauku attistibas…, 2007). In 2012, the legal framework for LFA support in Latvia is based on:

1) the Rural Development Programme for Latvia 2007-2013;
2) the Cabinet Regulation No.295 (2010) "Regulations regarding Granting, Administering, and Supervising National and European Union Support for Rural Development to Enhance the Environment and Rural Landscapes". LFA support will be provided until 31 December 2013. The Cabinet Regulation sets the following eligibility criteria for receiving LFA support in 2012: an utilised agricultural area (UAA) declared for LFA support is located in an LFA, it is declared for single area payments, and agricultural activity is practised in an area of at least one hectare consisting of fields of at least 0.3 hectares in size. Besides, a five-year commitment to engage in agricultural production has to be assumed, and a cattle density of at least 0.2 livestock units per hectare of permanent meadows and pastures, perennial grasses sown on arable land, or nectar crops eligible for financial support has to be ensured. A fallow area is eligible for support if the area of fallow land does not exceed 30 percent of the total UAA during the current year. Such eligibility criteria are quite simple, which stimulates farmers to apply for this kind of support. A similar situation is also in Poland, as the LFA measure is widely accessible for beneficiaries because the criteria that are in force are easy to meet (Klepacka-Kolodziejska, 2006). The characteristics of LFA support in Latvia are presented in Table 1.

One can conclude from the information presented in Table 1 that over the period of analysis, the LFA support



Source: author's calculations based on the LSIAE database, 2012 and Pilvere, 2012 b

Fig.1.**LFA support per ha, LVL, the rate of SAP per ha, LVL, and a comparison of these rates, %, in Latvia in 2004-2010**

reached LVL 210 mln or 12.4% of the total financial support for agricultural and rural development, however, the LFA support comprises a significant share of RDP area payments (APs) or on average 60.2% and 72% of single area payments (SAPs). Yet, given the fact that the amount of LFA support paid in the period 2004-2010 was quite stable, while the RDP APs, SAPs, and total support payments increased, the role of LFA support decreased compared with other support payments. This trend was also affected by changes in the rates of support payments that are presented in Fig.1.

Over the period of analysis, the LFA support per ha of area declared for this support was relatively stable regardless of the rate reduction in the period 2007-2013, as the difference between the highest and lowest rate was 14%. Yet, owing to persistent increases of 3.2 times in the rate of SAP in 2010 compared with 2004, the difference in LFA support payments per ha, which accounted for only 69% of the rate of SAP in 2010, decreased, although right after the accession to the EU the difference was 2.5 times.

A similar situation exists in the Czech Republic where the share of the LFA payments in the current subsidies steadily decreases during the 2004–2009 time series. This is caused by the "transitional" increase of other types of subsidies, namely the direct payments, while the LFA payments are fixed for the whole programming period (Stolbova, Micova, 2012).

2. LFA support in the regions of Latvia

The main indicators of LFA support for the regions will be calculated by using: 1) the LSIAE database on RDP support; 2) the FADN information.

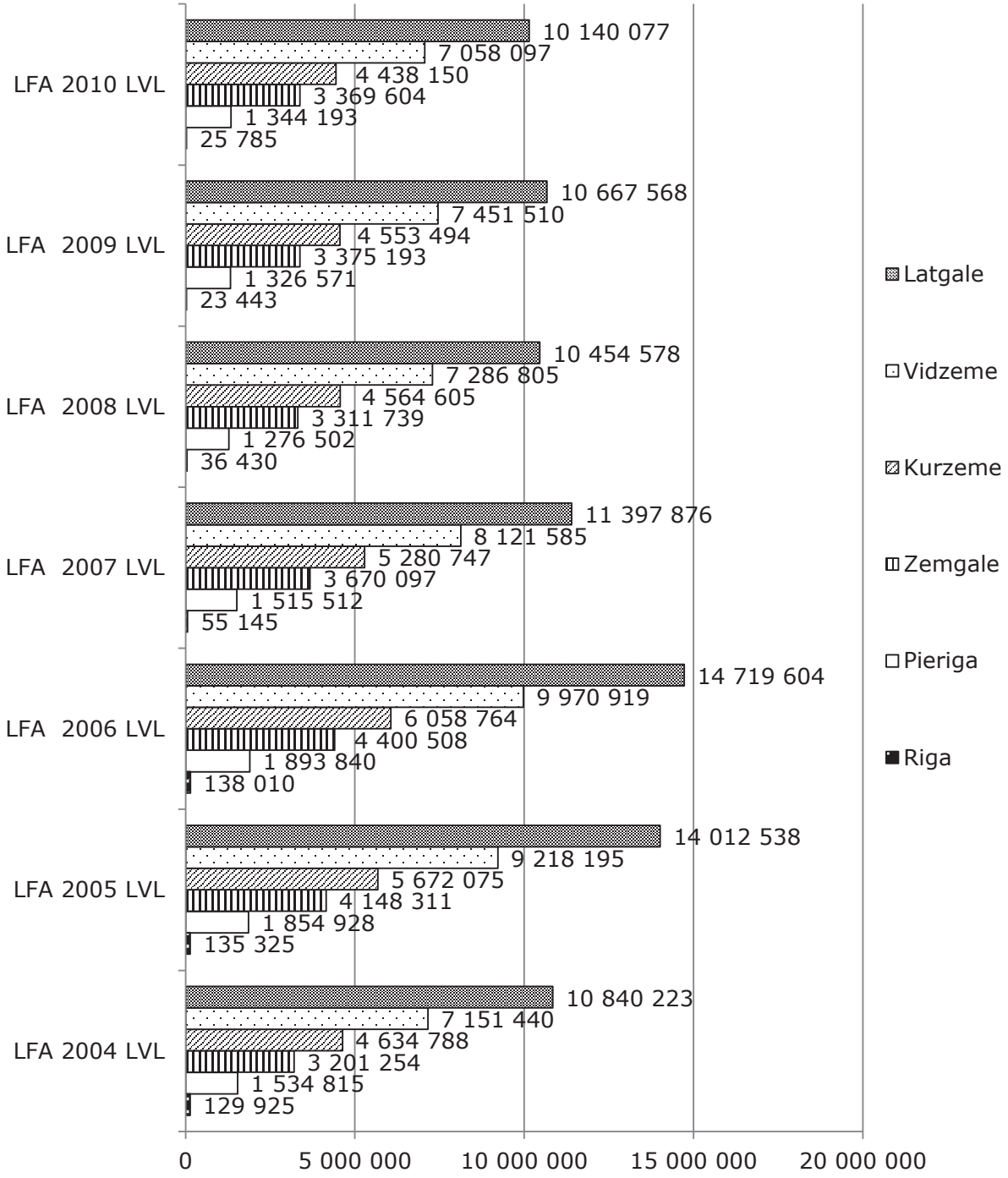
The calculation results, using the LSIAE database on RDP support, are presented in Figures 2 and 3. Figure 2 shows the LFA support paid to farmers of the respective region, which confirms the trends in the total amount of financial support presented in Table 1 – the total amount increased in all regions in the period from the accession to the EU until 2006. Yet, the rate of increase in LFA support, compared with 2004, was different; in three regions – Vidzeme (139%), Zemgale (137%), and Latgale (136%) – the increase rate exceeded the overall national rate of increase in LFA support (135%), while Kurzeme (131%), Pieriga (123%), and Riga (106%) lagged behind. In the period 2008-2010, the LFA support decreased in all the regions at a quite similar rate of 8-16%, except in Riga, where the decrease was the largest – 53%.

However, the percentage distribution of LFA support for the entire period shows that farmers in Latgale received 39%, Vidzeme almost 27%, Kurzeme almost 17%, Zemgale 12%, and in Pieriga – 5% of the total amount of this funding, while in Riga it was only 0.3%. Compared with the base year, an increase in LFA support in 2010 was observed only for Zemgale region, as it rose 5% in the period since 2004, whereas a decrease was observed for all the other regions, and in Riga region it decreased by 80%.

Similar trends might be observed for the area declared for LFA support (Figure3). Until 2006, the area declared for this support increased in all the regions, yet, in three regions – Vidzeme (134%), Zemgale and Latgale (133%) – the increase rate exceeded the overall rate (131%) of increase in the area declared for financial support, however, Kurzeme (126%), Pieriga (120%), and Riga (102%) lagged behind.

In the period 2008-2010, the area declared for LFA support rose in Pieriga (103%) and Zemgale (102%), whereas it slightly decreased by 1-2% in Latgale, Vidzeme, and Kurzeme regions, and a significant decrease of 52% took place in Riga.

After calculating and analysing the percentage distribution of the area declared for LFA support in the period 2004-2010 (Figure3), one can see that in Riga, Vidzeme, and Zemgale it corresponded to the percentage distribution of LFA financial support (0.2%, 12%, and 27%, respectively), while in Pieriga and Kurzeme the share of area exceeded the share of funding (6% and 20%, respectively), which pointed to



Source: author's calculations based on the LSIAE database, 2012 and Pilvere, 2012 b

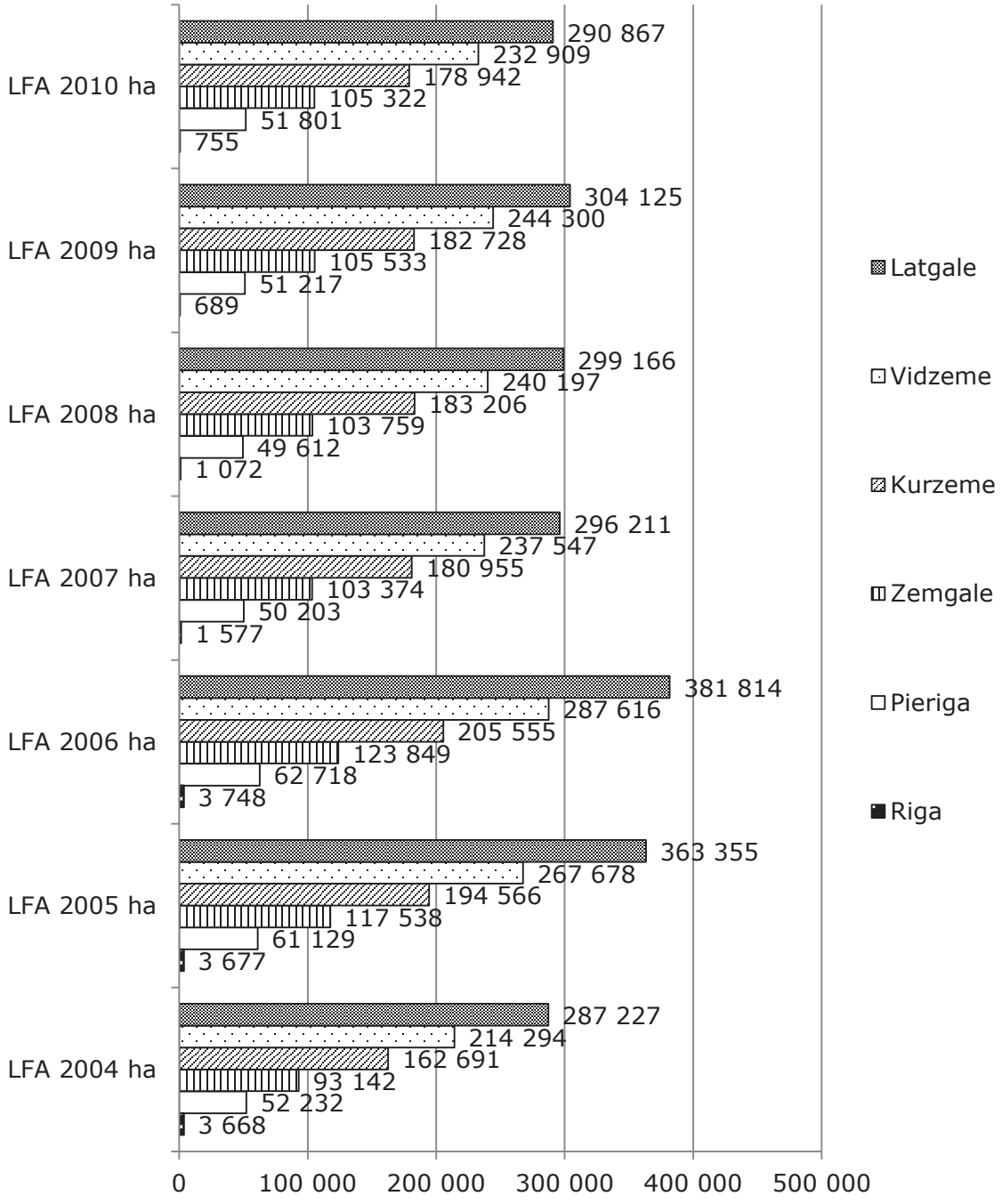
Fig.2. **LFA support in the regions of Latvia in 2004-2010, LVL**

large unfarmed LFA areas, whereas in Latgale (35%) it lagged behind, which indicated that these areas were small and the proportion of Category 3 LFA areas was greater.

After calculating the LFA funding per 1 ha of the area declared for this support (Figure 4), one can find that:

— there were two distinctive periods – a greater financial support per 1 ha in the period 2004-2007 and a lower one in 2008-2010. The largest difference was observed for Pieriga and Zemgale with 14%, the smallest one was observed for Riga with 5%, while there were medium differences for Vidzeme with 11% and Latgale and Zemgale with 9%;

— during both periods, the greatest support per 1 ha, ranging within LVL 35-39, was paid in Latgale, followed by Riga with LVL 34-37, whereas the smallest financial support was available in Kurzeme

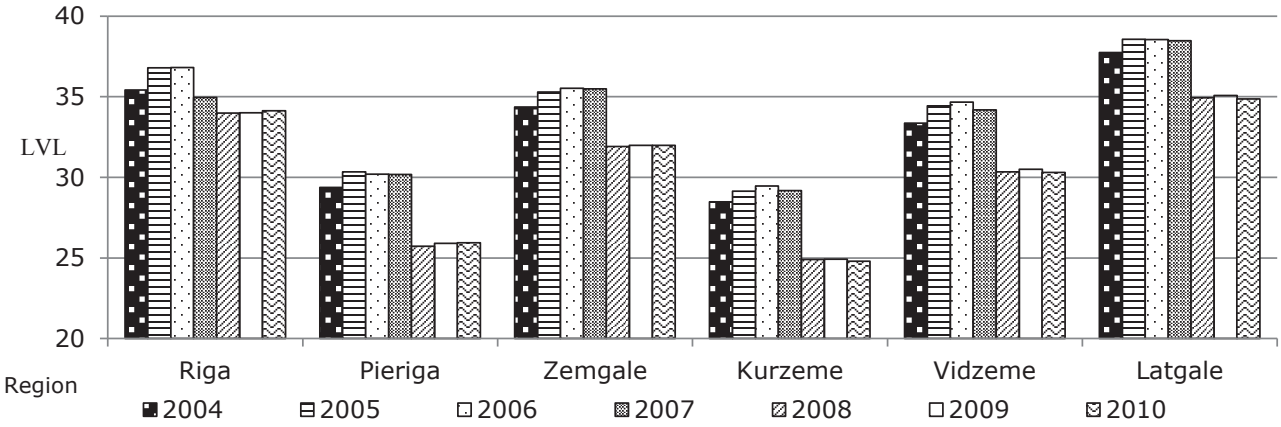


Source: author's calculations based on the LSIAE database, 2012 and Pilvere, 2012 b

Fig.3. **Area declared for LFA support in the regions of Latvia in 2004-2010, ha**

with LVL 25-29 and Pieriga with LVL 26-30, but in Vidzeme and Zemgale this level was medium, which might be explained by the share of LFAs of Categories 3 and 2 in the total LFA support.

In 2010, the LFA support in these regions was 3.7 and 3.1 times, respectively, greater than in the regions of Riga/Pieriga. A similar situation was also observed for the area declared for LFA support, as in Vidzeme and Latgale it accounted for 61-65% of the UAA, while in the regions of Riga/Pieriga and Zemgale it was only 23-27% (CSP, 2010). In the regions, the LFA support as a share of RDP area payments had similar trends as in entire Latvia, as only LFA support was granted in 2004. During the next years, the role of LFA support significantly declined in the regions of Riga and Pieriga, and its share was 27%; a medium share of 45% was observed for the regions of Zemgale, Vidzeme, and Kurzeme, while in Latgale region it was significant – 58% of the total amount of RDP area payments. If the LFA support is compared with the



Source: author's calculations based on the LSIAE database, 2012 and Pilvere, 2012 b

Fig.4. **LFA support per 1 ha of the area declared for this support in the regions of Latvia in 2004-2010, LVL**

Table 2

LFA support in the regions of Latvia in 2005-2010, LVL

Years/ Region	Pieriga	Vidzeme	Latgale	Kurzeme	Zemgale	Average
2005	274	2008	1633	971	902	1177
2006	309	1841	1464	1139	1134	1212
2007	462	1513	1360	1095	945	1157
2008	359	1269	1502	949	1080	1093
2009	440	1289	1618	1060	1050	1143
2010	414	1542	1758	1124	1307	1267
2010/2005, %	151	77	108	116	145	108
2010, % of average	33	122	139	89	103	100

Source: author's calculations based on LVAEI, 2005, 2006, 2007, 2008, 2010, 2011 and Pilvere, 2012 b

Table 3

Share of LFA support in the total amount of support payments in the regions of Latvia in 2005-2010, %

Years/ Region	Pieriga	Vidzeme	Latgale	Kurzeme	Zemgale	Average
2005	3	16	20	14	8	13
2006	2	16	20	11	9	12
2007	4	6	20	11	7	12
2008	4	13	15	9	7	10
2009	5	13	17	10	7	11
2010	5	14	17	10	9	11
2010/2005, %	175	87	88	68	113	89
2010, % of average	45	123	152	84	77	100

Source: author's calculations based on LVAEI, 2005, 2006, 2007, 2008, 2010, 2011 and Pilvere, 2012 b

amount of SAPs, one can see that the LFA support played a significant role in the regions of Vidzeme and Latgale, where the LFA support exceeded the amount of SAPs 2.1 and 2.6 times, respectively; over the next years, its role decreased, and in 2010 it was 50% and 62%, respectively, of the amount of SAPs. The LFA played a medium role in Kurzeme, where it was 33% of the amount of SAPs in 2010, while a small role belonged to LFA support in the regions of Riga, Pieriga, and Zemgale.

Table 4

LFA support per 1 ha in the regions of Latvia in 2005-2010, LVL

Years/ Region	Pieriga	Vidzeme	Latgale	Kurzeme	Zemgale	Average
2005	7	29	33	16	10	19
2006	6	27	33	17	13	19
2007	8	26	32	16	11	19
2008	6	23	29	14	13	18
2009	8	22	29	15	12	18
2010	7	23	30	15	14	18
2010/2005, %	100	80	90	92	143	98
2010, % of average	40	128	162	82	77	100

Source: author's calculations based on LVAEI, 2005, 2006, 2007, 2008, 2010, 2011 and Pilvere, 2012 b

Table 5

LFA support per 1 LVL of output in the regions of Latvia in 2005-2010, LVL

Years/ Region	Pieriga	Vidzeme	Latgale	Kurzeme	Zemgale	Average
2005	0.00	0.09	0.12	0.05	0.02	0.03
2006	0.00	0.08	0.11	0.05	0.03	0.03
2007	0.01	0.06	0.10	0.04	0.02	0.03
2008	0.01	0.05	0.08	0.04	0.02	0.02
2009	0.02	0.06	0.11	0.05	0.03	0.03
2010	0.01	0.06	0.09	0.04	0.03	0.04
2010/2005, %	549	65	78	76	170	116
2010, % of average	37	166	256	110	89	100

Source: author's calculations based on LVAEI, 2005, 2006, 2007, 2008, 2010, 2011 and Pilvere, 2012 b

Table 6

Share of LFA support in the net income of farms in the regions of Latvia in 2005-2010, %

Years/ Region	Pieriga	Vidzeme	Latgale	Kurzeme	Zemgale	Average
2005	2	16	22	13	6	10
2006	1	18	22	11	11	11
2007	4	15	21	10	6	8
2008	3	13	22	11	6	12
2009	11	34	31	17	14	32
2010	6	23	25	12	13	14
2010/2005, %	342	141	115	95	201	145
2010, % of average	47	165	181	89	92	100

Source: author's calculations based on LVAEI, 2005, 2006, 2007, 2008, 2010, 2011 and Pilvere, 2012 b

3. LFA support for the FADN farms in the regions of Latvia

Further, the FADN information will be analysed for five agricultural regions: Pieriga, Vidzeme, Kurzeme, Zemgale, and Latgale. As it was identified in the previous chapter, Riga region received insignificant LFA support, which makes it an exception. Since information on LFA support is available in the FADN network for a period since 2005, a detailed analysis was performed for the period 2005-2010.

The FADN information on LFA support in the regions partially corresponds to the findings of Chapter 2 of the present research – the largest LFA support was received by farms in Latgale and Vidzeme. Yet, since the third largest amount of LFA support was paid in Kurzeme in 2010, the FADN information indicates that farms of

Zemgale are in the third position, followed by those of Kurzeme in the fourth position, which may be related to the selected sample of the FADN farms. The FADN information also indicates that the smallest LFA support was received by farms in Pieriga, although an increase from the base year (like in Zemgale) is the greatest in this region. In the period 2005-2010, the amount of LFA support decreased only in Vidzeme.

Given the mentioned facts on LFA support in the regions, a similar trend was observed for the share of LFA support in the total amount of support payments – in 2010, it accounted for 17% and 14%, respectively, in Latgale and Vidzeme, a slightly lower share was in Kurzeme and Zemgale.

The LFA support per 1 ha of farms' area presents the previously established trends – in Latgale and Vidzeme it was 1.6 and 1.3 times, respectively, greater than on average in the country, and minimal one was in Pieriga. Yet, it has to be noted that over the period of analysis, the LFA support increased 1.4 times in Zemgale region, in Pieriga it remained at the level of 2005, whereas it decreased in the regions having the largest LFA support.

The data presented in Table 5 indicate that the LFA support had an insignificant effect on agricultural output in all the regions, except Latgale, where 0.09 LVL of LFA support were required to produce products worth 1.00 LVL. Thus, the greatest LFA support generated the smallest quantity of products in Latgale.

In 2010, compared with 2005, the role of LFA support increased in all the regions, except Kurzeme, as the share of it in the net income of farms rose. This share was high in the regions of Vidzeme and Latgale, accounting for 23%-25%, whereas in the regions of Kurzeme and Zemgale it comprised 12%-13%.

Conclusions, proposals, recommendations

The amount of LFA support totalled LVL 210.5 mln in Latvia in the period 2004-2010, which accounted for 12% of the total amount of financial support of all kinds paid for agricultural and rural development. Over the period of analysis, the LFA support per ha was relatively stable, yet, if compared with the SAPs, its role decreased, as the rates of SAPs were gradually increased and had exceeded the LFA support measured per ha since 2008.

LFA support payments were very important for farms in Latgale and Vidzeme, and medium important for those in Kurzeme and Zemgale. Of the total amount of LFA support, these regions received 94.5%, which corresponded to the area declared for this support in the period 2004-2010.

The LFA support per ha decreased in all the regions in the period 2008-2010 compared with the period 2004-2007, yet, the highest rates of support were paid in Latgale (35-39 LVL ha^{-1}) and Riga (34-37 LVL ha^{-1}), which might be explained by a higher share of LFAs of Categories 3 and 2 in the total LFA support.

Farms in Latgale and Vidzeme received 1.6 and 1.3 times greater LFA support if measured per 1 ha. In these regions, the LFA support accounted for 23%-25% of the net income of farms. The most inefficient use of LFA support was observed in Latgale, where 2-3 times greater LFA support was required to produce agricultural products worth 1.00 LVL than in the other regions.

The findings of this research should be taken into account in designing an LFA support policy from 2014 onwards.

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THE DEVELOPMENT OF FOREST PROPERTY RIGHTS FROM EARLY 20TH CENTURY TO MODERN TIMES

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Abstract. Forest is an important natural resource to the Latvian economy. It is useful to examine the historical context to estimate objectively the events that created the structure of forest property rights today. While 50.3% of all Latvian forests are state-owned and the remaining 49.7% are under different ownership, historically this structure has changed with the political situation and the authorities. The changes in forest property rights were examined from the beginning of the 20th century up to modern times, identifying three distinct periods.
The main conclusions were that, looking from the standpoint of economic performance, the period between the beginning of the 20th century and 1940 was characterized by an ill-conceived transformation of forests into farmland. In 1989, the notion that rural households are an economically independent form of farming became established. The year 2000 marked the final large transformation, as the state functions in forestry were delegated to the Joint Stock Company "Latvijas valsts mezi", which now contributes significantly to the state and local budgets.
Key words: forest ownership, agrarian reforms, economical issues.
JEL code: Q15

Introduction

Forest is a priceless treasure of the natural world. According to the data of the Central Statistical Bureau of Latvia, the total forested area is 3.5 million hectares, covering 56.9% of the territory of Latvia. This puts us among the most forested countries in Europe. In 2011, the export value of forestry output was 1.18 billion lats, the value of final goods 1.34 billion lats, and its share of gross domestic product accounted for 5% (Klauss K., 2011). These facts show that forests are an important natural resource for the Latvian economy.

50.3% of all Latvian forests are state-owned, and the remaining 49.7% are under different ownership. Historically, this structure has changed with the political situation and the powers. It is important to understand the historical developments. The eminent Austrian economist Schumpeter has said that historical knowledge in particular makes it possible to include an understanding of the state and the societal institutions that make up economic life in analysis. To shorten the length of material, the authors chose the beginning of the 20th century as the starting point of analysis of forest property rights, dividing this time into three periods.

Man has been dependent on the forest for food, material, recreation, and income from antiquity to the modern day. In order to estimate objectively the events that produced the structure of forest property rights today, it is useful to examine the historical context. Property rights are a key factor for achieving maximal economic outcome from forest resources in a sustainable way. In addition, this research is topical, because it is important to explore forest ownership development as the basis for future researches. Based on the topicality of the theme, the **aim** of the study was defined as exploring the structure of forest property rights from the beginning of the 20th century to modern days. To accomplish it, the following **objectives** were proposed:

1) to explore the development of forest property rights from early 20th century to 1940;
2) to explore the development of forest property rights from 1940 to 1990;
3) to explore the development of forest property rights from 1990 to the modern days.

Monographic descriptive method, analysis and synthesis methods are used in the research to explore the development of forest property rights from early 20th century to the modern days as well as theory aspects and problem elements. Empirical research method is used to develop general statements from separate facts or to determine regularities. Logical construction and interpretation methods are used for developing conclusions. Legislative acts of the Republic of Latvia, scientific publications, other relevant literature, and internet resources were used in the study.

Research results and discussion

The structure of forest property rights and changes in its distribution will be explored in three periods, describing the most important events during each of these periods. The periods are chosen based on the theoretical studies (Boruks A., 2003, Boruks A., 2001, Strods H., 1999., Kronitis J., 1965). The changes of political and socio-economic regimes are the result of the period distribution.

1. Characterisation of forest land property rights before 1940

For many centuries, the territory of Latvia has been under the rule of various foreign powers. Only in the

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19th century Latvian peasants did gain the right to purchase property. Redemption of noble properties claimed with serfage begun in the second half of the 19th century. It was not uncommon to purchase farms in Kurzeme and Vidzeme together with all their easements. Private estates had an especially high amount of easements. When the purchase of farms by serfage started, nobles often cut down and sold off the largest of the peasant forests (Strods H., 1999).

Until World War I, only about 10% of all the land, i.e. around 650 thousand hectares, was owned by the state. The majority of this state owned land – more than half of it (around 400 thousand hectares) was covered with forests. Around 1300 private estates owned 48% of all the land, 39.5% was owned by the peasants (Vasilevskis A., 2007).

Since forests could be totally owned by the "crown" or the nobles, but not the peasants, peasant farms suffered from lack of access to forests for centuries. Theft was observed to be one of the ways to acquire the necessary construction materials and firewood. The relationship between the estates, the "crown" and the peasants in regards to forest ownership become aggravated during the peasant unrest, and especially during the 1905 revolution. The peasants made estate privileges on using forests and gave themselves rights to use the forests, too (Strods H., 1999).

Neither economic development, nor legislation managed to assure the use of forests to benefit the people. Thus, after the revolution in Russia, the revolutionary legislation in Latvia tried to settle the forest issues for the benefit of the people. After the establishment of the State of Latvia on 18 November 1918 and victory in the War of Liberation (1918-1920) against the Bermontians and the Bolsheviks, an independent policy and legislation on forestry emerged (Strods H., 1999).

In 1918, the Forest Rules of the Russian Empire adopted in 1905 were still in force. The Forest Rules divided all the forests into state, public, and privately owned. All of the said categories could still fall under the influence of others thanks to the ancient easements. The easements were cancelled before 1930s. An exception was the forests of His Imperial Highness' Cabinet, which fell under special rules. State owned forests were a "crown" property. State forests were further divided into "crown" and special forests. (Strods H., 1999).

On 20 January 1918, Iskolt decided to nationalize the forests of the Vidzeme province, putting them at the service of the Latvian workers, soldiers, and members of the Landless Board. With the failure of the Bretlytovska peace talks and resumption of the German attacks in February of 1918, all of the territory of Latvia fell under occupation. All of Iskalots' activity, including in the field of forestry, ceased. The nationalization of forests remained at the level of intentions (Vasilevskis A., 2007).

On 19 February 1919, the Latvian Interim Government established the Department of Forests (Strods H., 1999). The Section of Private Forests ran parallel to the Department of Forests under the auspices of the Ministry of Agriculture from August 1918 (Salins Z., 1999). On 8 October 1920, a circular by the Department of Forests titled For Private Estate Foresters heralded that the forests of private estates would be nationalized starting with 1 October (Strods H., 1999).

The takeover of private forests can be divided into two stages: first – ownerless forests, second – forests taken over by the state in accordance with the Agrarian Reform after 1 October 1920. The Agrarian Reform of 1920 (1920 – 1937) was a radical land ownership, land property size, and land usage rearrangement with legislation. It was based on the Agrarian Reform Law adopted by the Constitutional Assembly on 16 September 1920. The first part of the Agrarian Reform Law adopted by the Constitutional Assembly on 16 September 1920 established the State Land Fund. It incorporated all the state land (former "crown" estates and forests) as well as the majority of the previously private estates and clergy estates (Strods H., 1999).

Takeover of ownerless forests was necessary to protect them from rough looting. If the takeover of state forests did not cause any particular problems, privately owned forests did present various problems. The revolution and the wars had dispersed estate owners across all of Europe. Fearing expropriation, they tried to protect their property rights using proxies. Private forests were in a chaotic state – lacking administration, management plans, and descriptions, the forests also contained abandoned wood products claimed by various entities. Takeover of ownerless forests started even under the conditions of war – from 1919 to 1920. The estate owners and their proxies did not always claim their property rights in time, leading to premature takeover of their property (Vasilevskis A., 2007).

The second part of the Agrarian Reform Law, which was adopted by a joint meeting of the Constitutional Assembly on 21 December 1920, set the rules for using the State Land Fund. Agricultural land, excluding part of forest meadows, was included in the distribution fund and handed over to state land inspectors. Forest lands were handed over to the Department of Forests (Strods H., 1999).

According to the 1921 data, Latvia had 1820 thousand hectares of forests, covering 28% of its territory. State owned forests constituted about 84.1% of all the Latvian forests. The other 15.9% of the forests were privately held (14.3%) and owned by the municipalities (1.6%). Precise data about the areas were not available at the time. According to other (but still imprecise) data, after taking over the estates in 1920, the state, on the basis of the Agrarian Reform Law, held 2,007,111 hectares, an increase of 65 thousand hectares (Vasilevskis A., 2007.). The Section of Private Forests was abolished after these forests were taken over. By large, the forests were kept in the state ownership, without further distribution to farmers (Strods H., 1999).

Zigurds Salins in the book "Forest Use in Latvia" emphasized a problem that rose out of the agrarian reform, when forest lands were allocated to new farms. If the state forest fund held a little over 2 million hectares in 1922, 25% of which were former Russian state forests ("crown" forests) and 75% were former estate forests, then on 1 April 1938 the state forest fund holdings had decreased to 1,735 thousand hectares due to distribution of 370 thousand hectares of fund's land to new farms (282 thousand hectares of forest land and 88 thousand of non-forest land). This process intensified from 1923 to 1930. As a result, the state's forest ownership declined every year, going from 87% in 1923 to 78% in 1938.

From the standpoint of agricultural policy, the distribution of forest fund's land to agricultural use is justifiable and acceptable only if forestry is less economically viable than agriculture. However, since agriculture in Latvia produced less profit than forestry, this action can be seen as unwise. From 1923 to 1935, the use of forest resources produced an average annual profit of 10.5 million lats to the state treasury (Salins Z., 1999).

In the period from 1923 to 1938, the share of private forests increased from 11% to 18%, but communal and other ownership categories rose from 2% to 4% (Salins Z., 1999). At the start of World War II, Latvia had 0.9 hectares of forest per inhabitant (Forest Sector in Latvia ..., 2011).

The development of forest property rights during this period was complicated because changing political leadership meant previous reforms lost power and new ones came to replace them. Regardless of that, a tendency of increased order and sophistication in the forest property rights is noted, also introducing the notion of private property for the first time, thus laying the foundations for the market economy. The progress on land rights was determined by the 1920 Agrarian Reform Law, though subsequent events pointed to its shortcomings. From the economic standpoint, the decision to distribute forest land to the new farms was unwise, since it lead to forest land being turned into agricultural land. This action was one of the reasons for the decline in the total forest area. It follows that today one also needs to compare which form of economic activity is more profitable before introducing major reforms. Another shortcoming of the agrarian reform is that the state owned 80% of the forests in 1938, while only 18% were held privately. The authors believe that a balanced approach with similar shares for government and private ownership would have furthered private entrepreneurship, encouraged competition and improved the economy. If not for the outbreak of World War II, such an outcome would have been possible.

2. Forest property rights from 1940 until 1990

Beginning with 1940 the Latvian nation was subjected to 50 years of occupation, a foreign power imposing its own rules, and the Latvian having no say in his own land. Great changes took place in the field of forest property rights as well, as private ownership was abolished. This abolishment of private ownership is characteristic of the period in forest property rights. With the incorporation of Latvia into the Soviet Union, the state became the only owner of forests.

On 22 July 1940 the People's Parliament issued the Declaration of Land Transfer to the Ownership of the People, with which the parliament declared all land and its riches, forests, lakes, and rivers to be the property of the people, i.e. the state. The area of land given to use by farmers was limited to 30 hectares. All of the land that exceeded this size was transferred to the state land fund, so the state could give land to landless peasants and small farms. The legislation was adopted in a great hurry (Locmers M., 2000).

22 July 1941 marked the start of Germany's military campaign against the USSR, and as soon as the beginning of July, all of Latvia came under German occupation. The German authorities upheld the basic rules of the 1940 land nationalization (Locmers M., 2000).

After the change of the occupying power on 7 September 1944, a decision was made On the Liquidation of German Occupation Effects in the Agriculture of the Latvian SSR, producing instructions about the return of land and provision of land to servants, landless peasants, and small farms. In the period between 1944 and 1947, the land reform was repeated (Locmers M., 2000). It was declared that state forests are all forests in the territory of the republic, except forests that were given to collective farms in perpetuity. It was accepted that the forests of the Latvian SSR's Ministry of Forestry and Forest Industry are referred to as state forests (Kronitis J., 1965).

The land reforms of 1940 and 1944-1947 were executed in a hasty manner, using the most basic methods, without producing technical drawings of land surveys, indicating the short-term political goals behind the reforms. This was confirmed by the collectivization of farming and liquidation of the peasantry that followed, driven by the same reform scenarios that put party dogma, government decisions, and political leader instructions above laws (Locmers M., 2000).

The goal of the Soviet authorities was not the formation of individual farms but outright collectivization – creation of large Soviet farms, kolkhozes, and sovkhozes. This was implemented soon, in 1949-1950. Since the peasants did not want voluntarily to join the large collective farms, it was done forcibly. Forced collectivization was executed very rapidly. While working in kolkhozes, Latvians gradually lost the characteristic lifestyle and work ethics (Boruks A., 2003).

In 1961, the land area of Latvian SSR kolkhoz forests stood at 5,421.1 thousand hectares, or 19% of the total forest land in the republic. The state forests had a combined area of 2.8 million hectares (Kronitis J., 1965). The Law of Latvian SSR Land Code was passed on 5 May 1970. The Land Code did formally regulate peasants' right to hold farms, while also stipulating that they should have no more than one hectare of land and up to 0.2 hectares of backyard land at their disposal. With the gradual democratization of agricultural policy during the period of national revival, the recognition that a new land reform was necessary gradually took hold (Locmers M., 2000).

According to data from 1988, the state forestry institutions managed 63.3% of the total forest land, agricultural companies – 33.2%, towns and other institutions – 3.5% (Distribution of Forest ..., 1998).

On 6 May 1989, the Supreme Council of the Latvian SSR adopted the Law of Peasant Farms in the Latvian SSR, which marked the first step towards restoration of private property. While orienting the law towards a reorganization of industrial relations in rural areas, it was emphasized that peasant farms are an independent form of agricultural production with equal rights to kolkhozes and Soviet farms. The concept of peasant property was put into law. Land given to a peasant shall not be divided and its size can only be changed via an application from the owner. Adoption of this law gave hope that a Latvian could once again be the master of his land and his tillage (Berezovskis Z., 2000).

Comparing the previous two periods in history, one can note a significant difference. If during the period between the beginning of the 20th century and 1940 the

goal of land reform was to put property rights' regulation in order, granting the right of private ownership, then after 1940 the goal of reform was liquidation of private ownership. Market economy ceased to function in this period. A centralized government ran economic development. The state was declared the only owner of forests. The hasty nature of land reform, without making technical drawings of land surveys, destroying private ownership, and building collectivized farms, was misguided. With the destruction of peasantry, people assimilated, and the characteristic lifestyle and work ethics of the countryside were lost. A breeze of fresh air came with the law of 1989 that proclaimed peasant farms to be an independent form of agricultural production. This law marked a breaking point with talks about the return to the market economy and restoration of private ownership coming just a year later.

3. Forest property rights after 1990

The need for new agrarian reform was set by the political realities after the proclamation of independence on 4 May 1990, and the shape of the economic policy, which tried to set the stage for a gradual phase-in of the market economy (Grube G., 2000).

The process was made easier because before the 4 May declaration of independence, some work, like giving land usage rights to viable farms, had already been done. To assure succession of the process, the Supreme Council formed a group that developed concepts for privatization of rural land, at first granting usage rights to the people who worked the land, while simultaneously allowing its privatization (Grube G., 2000).

The decision of 13 June 1990 On Agrarian Reform is considered the start of Land reform in Latvia. It was a republic-wide bid for agrarian reform, within which the land reform would have to be executed (Berezovskis Z., 2000).

On 21 November 1990, the Supreme Council of the Republic of Latvia adopted the law On Land Reform in Rural Areas of the Republic of Latvia, which went down in history as the first reform law that regulated the right to acquire property after 4 May 1990. Special attention was paid to incorporating a provision in the law that required all sale and purchase agreements with the land originating from land reform to be concluded only after the land rights have been recorder in the land register. This averted a lot of misunderstandings and disputes, and assured legal justification for transfer of property rights. This circumstance prevented possible disputes from deals made with owners whose rights to the property were not legally verified and recognized (Seile A., 2000). The land reform was implemented in two stages: first from 1990 to 1996 and second in the 10-15 year period starting from 1 January 1993 (Law On Land Reform ..., 1991).

The main condition for developing the agrarian reform was to create a legal basis for acquiring and re-acquire land. Another essential condition was linking of the land's cadastral value with the real estate tax, which created real and indisputable privileges to low quality and unusable stretches of land (Seile A., 2000).

To encourage rational use of land and undo the injustices that were allowed with the confiscation of private land, the Supreme Council of the Republic of Latvia made a decision on 15 May 1991 On Rights to Receive Compensation For Rural Land Confiscated on 22 July 1940 (Law On Land Privatization ... , 1992).

The law On Rural Land Privatization was adopted in 1992. It not only removed the flaws of the land reform law, but also created contradictions and changed its contents. The authors think that one of the most important aspects of it was a change in the goals of the reform, putting an emphasis on rights of previous owners and their heirs to regain property owned up to 21 July 1940, while discontinuing legal, social, and economic improvement or support for farming. As a result, the rights of existing users of these properties seriously suffered. A principle about equal rights of heirs to land, regardless of what it was used for was formulated, saying that everyone can regain his share without expense. Individuals' rights to property were officially restored in 1993 (Boruks A., 2001).

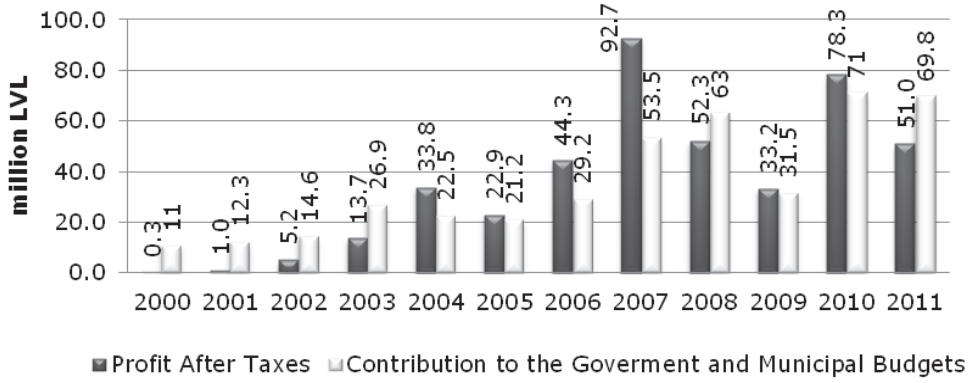
About 1.3 million hectares of forest land were subjected to privatization in 1996, for which about 120,000 to 180,000 individuals had applied for new or restituted property rights. In 1996, 15.5% of Latvian forests were in the hands of such new owners (Svarca K., 1996).

After regaining independence, the government of Latvia had to solve the same task that daunted the government of the first Latvian republic – putting the issues of property rights in order. The main difference was that with the agrarian reform law of 1920 and creation of the state land fund, the government took over state land, private estates, clergy estates, and ownerless forests, while the reforms started in early 1990s let the previous owners of the land regain property confiscated on 21 July 1940 giving people the opportunity also to acquire land by privatizing it. The final land reform was marred by several mistakes, fragmenting properties, creating unviable farms, and failing to support agriculture in general. Latvians had lost the pre-occupation work ethics, which had to be learned again. There was a broad failure to assure effective use of land.

A significant turning point in forest property rights' protection occurred in 1999 when, based on the order of the Cabinet of Ministers of the Republic of Latvia No. 453 On the Creation of Joint Stock Company "Latvijas valsts mezi", the company "Latvijas valsts mezi" (LVM) was established. It is an enterprise owned entirely by the state of Latvia. LVM started its economic activity in 2000 (Meza nozare, 2002).

From the economic standpoint, the creation of LVM has provided several positive benefits. Firstly, the corporation pays to the state a duty for using its capital, and it pays taxes to the state and municipality budgets. Secondly, it has created new jobs, employing 984 people in 2011. Thirdly, forests are managed in accordance with the principles of sustainability, which include maintaining and increasing the value of state's forests in the long term.

The company turned a small profit of 0.3 million lats (Figure 1) in its first year of operations. It continued to grow year by year, reaching LVL 33.8 million. In the next year, however, LVM earnings dropped, with one of the reasons being the storm of 2005. Record profits were achieved in 2007, a year of success for the economy of Latvia as a whole. With the beginning of the recession, LVM profits slid, only reaching



Source: JSC "Latvijas valsts mezi" Annual Reports from 2000 to 2011

Fig. 1**. LVM net profit and contributions to state and municipality budgets from 2000 to 2011, million lats**

LVL 33.2 million in 2009, a full 37% less than the year before, also marking the lowest profit since 2005. In 2010, LVM paid 57.7 million lats to the state, its highest contribution yet, giving state and municipal budgets a total of LVL 71 million. For 2011, the amount was only 1.2 million lats lower.

To summarize, because of historical events the percentage of forestland owned by the state has decreased by 34%, while the share of other forests has increased. The total area of forested land has grown by 53%. According to the Forest Fund, in 1921 Latvia had 1,780 thousand hectares of forest while, by the forest statistical inventory data for 2011, it now covers 3,354 thousand hectares of the state's territory. It means that there is 1.5 hectares of forest per inhabitant in Latvia, almost twice as much as at the time of the first Latvian republic.

Regardless of the complicated history, the many reforms, and changes in political leadership, the total area of forests in Latvia has grown from 0.9 hectares to 1.5 hectares per capita. Soviet occupation stopped the agrarian reform of 1920, which then came back in 1990 to some degree after Latvia regained its independence. Looking back in the history, it is possible to see mistakes that should not be repeated in the future. The authors believe that the structure of forest property rights in place today is the most optimal economically, with half of the forests owned by the state and almost half held by others. Such a distribution of property rights encourages competition, price stability, the growth of the industry and the state as a whole.

Conclusions

1. From the economic standpoint, the period from the start of the 20th century to 1940 is distinguished by the ill-conceived decision to allow the transformation of forest land into farmland. This step would only be acceptable, if agriculture was more profitable than forestry. From 1923 to 1935, forestry produced an annual profit of 10.5 million lats for the Latvia treasury.
2. With the 1940 Declaration of Land Transfer to the Ownership of the People, the state became the sole owner of forest land for the next 50 years.
3. The Law of Peasant Farms in the Latvian SSR passed in 1989 made history, marking the first step towards restoration of private property. Importantly, it recognized that farms are an independent form of agricultural production.
4. 2000 was the final year of significant change in the structure of forest property rights. The state's functions in forestry were taken over by the Joint Stock Company "Latvijas valsts mezi". The company contributes significantly to the state and municipality budgets, paying taxes and an annual duty for exploiting state capital.
5. The structure of forest property rights has changed since the 20th century, decreasing the share of the government, while increasing the share of other owners. The total area of forests has increased by 1,574 thousand hectares or 53%.

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MAIN FACTORS OF DIRECT EFFECT ON EMPLOYMENT IN LATVIA

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Abstract. The employment of the local population is a topical problem in Latvia and its regions. There is an economic and social need to promote employment both in Europe and in Latvia.
The research aim is to investigate and evaluate the main factors of direct effect on employment in the regions of Latvia. The findings, based on the expert method, showed that the following significant factors have a direct effect on employment: number of jobs, wage, number of working population, number of enterprises, and demographic burden.
The correlation analysis showed that there was a strong correlation between the number of vacant jobs and the number of employed persons in the regions of Vidzeme, Kurzeme, and Latgale. A medium strong correlation was observed in the regions of Riga, Pieriga, and Zemgale. With an increase in the number of vacant jobs, the number of employed persons in the regions of Latvia also rose and vice verse.
The present research found that stimulation of the factors of direct effect on employment would promote employment in Latvia's regions.
Key words: employment, direct factors, regions of Latvia.
JEL code: J00

Introduction

Over the recent years in Latvia, the labour market has been researched from various aspects, and there are studies on possibilities to promote employment in the country. The previous researches have not contributed to finding an effective solution for it, and the problem of employment becomes more acute. The employment of the local population is an urgent problem of Latvia and its regions.

There is an economic and social need to promote employment both in Europe and in Latvia. As the birth rate declines in the European Union Member States, significant demographic changes are expected for the next 50 years (population aging). As a result, the present European pension and social security model will be overburdened more than up to now and possibly even critically overburdened. Presently, part of the working age population is not employed for various reasons; therefore, many efforts are made to integrate economically inactive persons in the labour market (Optimala, nodarbinatibu veicinosa..., 2007).

Increasing employment would promote the economic development of Latvia and its regions and raise the standard of living of the population. Various factors influence employment, which may be classified according to the way of effect into two groups: factors of direct and indirect effect. Factors of direct effect are the factors that primarily can affect employment in Latvia and its regions, therefore, it is important to identify and research them.

Research **hypothesis**: various factors have an effect on employment in Latvia.

The **research aim** is to investigate and evaluate the main factors of direct effect on employment in the regions of Latvia.

To achieve the aim, the following **research tasks** were set:

1) the nature of and development trends in employment in Latvia and its regions were described;
2) an expert rating and ranking of the factors of direct effect on employment in Latvia was performed.

Research **subject:** factors of direct effect on employment in Latvia.

Research methods: the monographic and descriptive methods as well as analysis and synthesis, the graphic method, a statistical analysis method – correlation analysis, and a sociological method – the expert method were employed in the present research.

The present research is based on various scientific publications, documents that are publicly available as well as information available in the databases of the Republic of Latvia and expert survey results and other sources of information.

Research results and discussion

1. Nature of and development trends in employment in Latvia and its regions

Employment is a totality of physical, material, and emotional efforts made to produce goods and services that are intended for self-consumption or consumption by others. Employment is divided into three categories: employment as economic activity, employment as unpaid labour (leisure time spending), and voluntary work (Marshall G., Scott J., 2005).

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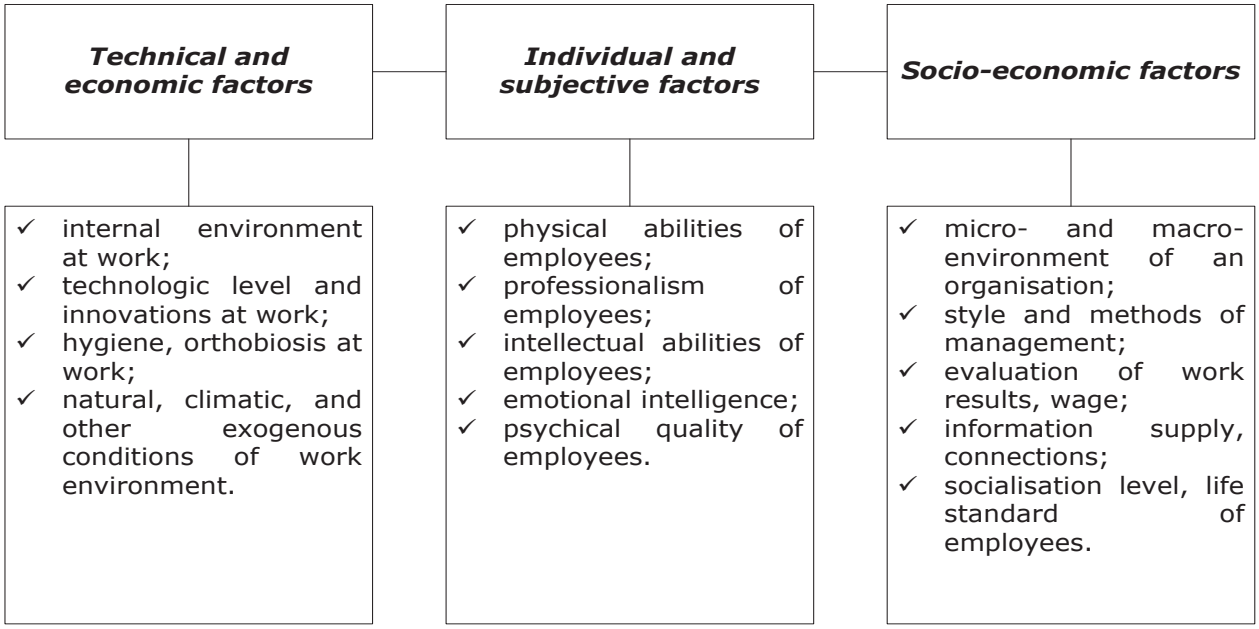


Source: Garleja, R., 2003

Fig.1.1. **Groups of factors affecting the working process**

Table 1.1

Number of employed persons in Latvia and its regions in 2006-2011, thous.

Statistical region	2006	2007	2008	2009	2010	2011	Change (+/-) 2011/2006, %
Riga	381.3	386.1	380.6	333.3	306.0	320.7	-15.9
Pieriga	172.6	189.1	192.8	170.7	168.2	174.3	1.0
Vidzeme	105.0	105.9	105.9	94	95.5	98.8	-5.9
Kurzeme	138.4	145.7	144.5	128.4	125.9	124.9	-9.8
Zemgale	129.4	133.4	137.5	118.8	111.7	118.2	-8.7
Latgale	160.9	158.8	162.8	141.5	133.7	133.6	-17.0
Latvia	**1087.6**	**1119.0**	**1124.1**	**986.7**	**940.9**	**970.5**	**-15.9**

Source: authors' construction based on the data of CSB and State Employment Agency

The main and positive aspect of an employment situation is a job. A. Giddens has outlined six elements that characterise paid and regular employment: money, activity level, variety, time planning, social contacts, and personal identity (Giddens A., 1999).

Habilitated pedagogical and economics doctor Rasma Garleja conditionally classifies the factors affecting the working process into three groups: technical and economic, individual and subjective, and socio-economic factors (Figure 1.1).

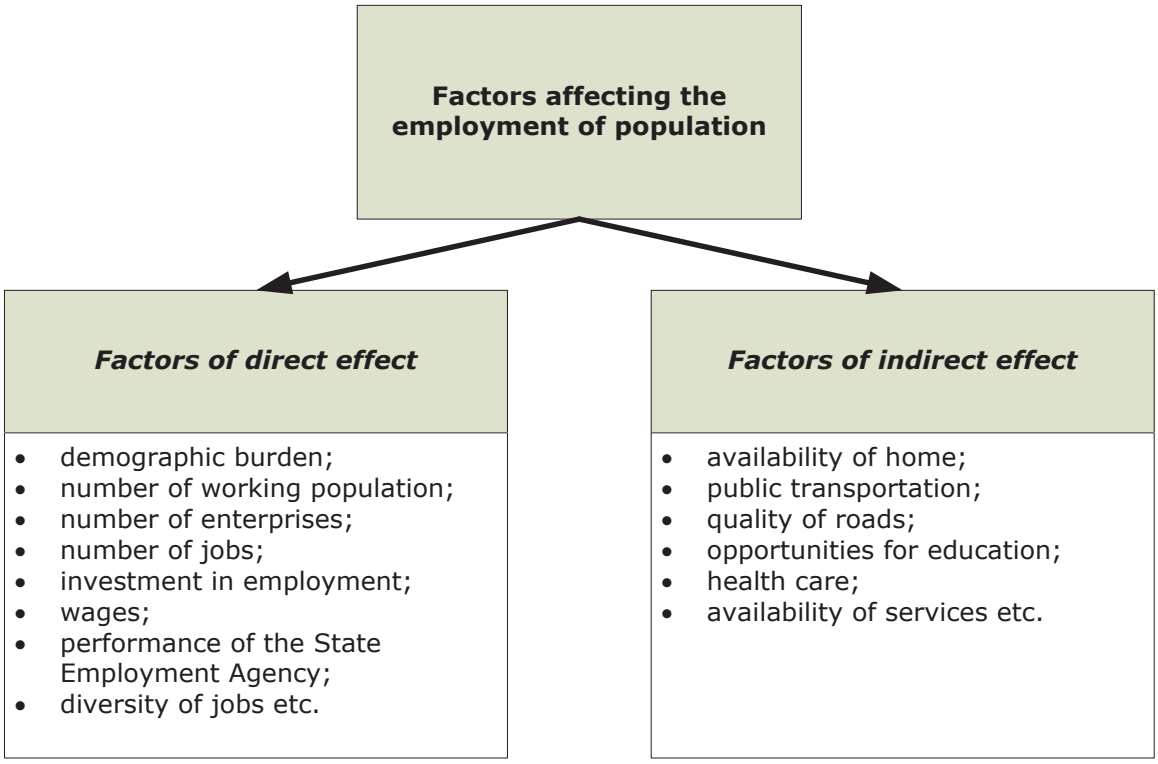
Employment theories described in literature are associated with wages and prices. For instance, a macroeconomics book, written by R.Dornbusch and S.Fischer, analyses employment in relation to wages and prices. The authors point to a correlation between wages, prices, and employment and the regulation process of changes in aggregate demand – monetary, lending, and financial policies or autonomous changes in consumption. The authors believe that the nature of supply economics relates to changes in prices and output, i.e. the regulation of prices and output after a while when the economy starts fluctuating (Begg D., Fischer S., Dornbusch R., 1984).

The total number of employed persons decreased in Latvia from year to year. The analysis of the number of employed persons by statistical region shows that it has been unstable (Table 1.1).

According to Table 1.1, the greatest change in the number of employed persons was observed in Latgale region – in 2011 compared with 2006, it decreased by 17%, while in the entire Latvia it decreased by 15.9%. Only in Pieriga region it rose by 1.0%.

If analysing employment in the country, it is important to find the rate of employment or the share of employed persons in the total number of population expressed as a percentage.

The average share of employed persons in the total number of population in Latvia in the period



Source: authors' construction based on Saulaja I., Rasnaca L., et al., 2007; Mihejeva L., Saulaja I., 2009; Zvaigzne A., et al., 2012.

Fig.1.2. **Factors of direct and indirect effect on employment in Latvia**

2006-2011 was 58.1%. The highest annual rate was in Riga region, as it is the capital city of Latvia. Over the period of analysis, a decrease in the rate of employment was observed in all the regions. The greatest decrease was in the regions of Riga, Pieriga, and Zemgale.

The rate of job seekers tended to increase in Latvia every year. The share of job seekers is an indicator showing a percentage of job seekers in the total number of economically active population.

In 2006-2011, the share of job seekers increased in each region (Number of job…). In 2011, the greatest increase was observed in the regions of Zemgale and Riga, whereas the smallest – 5.5% – was in Vidzeme region.

One of the most urgent problems in the labour market of Latvia from 2009 to 2011 was high unemployment. The number of unemployed persons in Latvia increased even twice. A sharp increase in the number unemployed persons was observed in 2009, especially in Pieriga region – 934.4%, followed by Riga region with 305.6%, and in the remaining regions it was 200.0%. Over the period considered, such an increase in the number of unemployed persons might be explained by the worsening of economic situation in the country. The situation slightly stabilised in 2011 when, compared with 2009, this number started decreasing: by 35.89% in Riga region, 75.9% in Pieriga, 30.5% in Kurzeme, 8.5% in Latgale, 26.0% in Vidzeme, and by 26.2% in Zemgale region.

Based on the research of other authors (Saulaja I., Rasnaca L., et al., 2007; Mihejeva L., Saulaja I., 2009; Zvaigzne A., et al., 2012) regarding employment, the factors affecting employment in Latvia may be classified into two groups (Figure 1.2):

1) factors of direct effect;
2) factors of indirect effect.

Employment in Latvia is directly affected by the demographic burden, the number of the working population, the number of enterprises, and the other factors of direct effect as presented in Figure 1.2. Employment is also affected by such factors of indirect effect as the availability of home and public transportation, the quality of roads, opportunities for education, and the availability of health care and services, yet, they were not researched.

The factors of direct effect on employment in Latvia will be further investigated in the present research.

2. Rating and ranking of the main factors of direct effect on employment in Latvia by experts

An expert survey was conducted within the present research, in which five experts were questioned to identify the key factors of direct effect on employment and rank them by significance on the scale from 1 (the most significant factor or priority No.1 in promoting employment) to 10 (the most insignificant factor or priority No.10). The results of the expert discussion are presented in Table 2.1.

Table 2.1

Expert rating results, ranks, and concordance coefficients or a Kendall's W test

Factors	Experts					$Rank \sum L_i$	$d_i = L_i - L_{vid}$	$(d_i)^2$	$Rank R$
	A	B	C	D	E				
	Ratings								
demographic burden	4	6	5	4	3	22	2.1	4.41	4
number of working population	1	3	3	1	2	10	-9.9	98.01	2
number of enterprises	3	2	3	2	1	11	-8.9	79.21	3
number of jobs	2	1	1	1	1	6	-13.9	193.21	1
investment in employment	6	4	4	6	6	26	6.1	37.21	6
wages	2	1	1	1	1	6	-13.9	193.21	1
performance of the State Employment Agency	5	4	5	7	5	26	6.1	37.21	6
diversity of jobs	5	3	5	4	6	23	3.1	9.61	5
social responsibility at an enterprise	6	7	3	8	7	31	11.1	123.21	7
labour safety at an enterprise	7	8	6	9	8	38	18.1	327.61	8
n=10	m=5					$\sum L_i$ =199	-	S=1102.90	-

Source: authors' calculation based on the data obtained in December 2012, ranking the factors of direct effect on employment by the experts

The replies provided by the experts were evaluated in terms of opinion concordance degree (Table 2.1). In the case of direct evaluation of parameters, the expert concordance degree is evaluated by means of the concordance coefficient W (Kendall M.G., 1955; Diakov N., Krug G., 1966) according to Formula 2.1:

$$W = \frac{12\sum_{i=1}^{n}\left\{\sum_{j=1}^{m} r_{ij} - \frac{1}{2}m(n+1)\right\}^2}{m^2(n^3-n)} \quad (2.1.)$$

Where:

W - concordance coefficient;

n - number of factors observed;

m - number of experts;

r_{ij} - rank for the i-th object based on the j-th expert's opinion.

Values of the concordance coefficients Wt and Wp change within a range $0 \le W \le 1$, besides, $W = 0$, if there is no correlation between ranks, and $W = 1$, if all experts have equally ranked the objects. A sufficient concordance coefficient is assumed to be $W \ge 0.5$, as it is believed that such concordance of experts is sufficiently high (Kendall M.G., 1955; Diakov N., Krug G., 1966).

Based on Formula 2.1 and the data of Table 2.1, the concordance coefficient was calculated:

$$W = \frac{12 \times 1102.9}{25 \times 10(100-1)} = 0.53$$

An average value of the rank sum L may be calculated by using Formula 2.2 (Kendall M.G., 1955; Diakov N., Krug G., 1966).

$$L_{vid} = \sum \frac{L_i}{n} \quad (2.2.)$$

Based on Formula 2.2 and the data of Table 2.1, the average value of the rank sum L was calculated:

$$L_{vid} = \sum \frac{L_i}{n} = \frac{199}{10} = 19.9$$

The average value of the rank sum was 19.9.

The concordance coefficient (W) was equal to 0.53, which indicated that the experts were quite unified in their opinions and unanimously recognised such factors of direct effect on employment as:

— Rank R No.1 – number of jobs;
— Rank R No.1 – wages;
— Rank R No.2 – number of working population;
— Rank R No.3 – number of enterprises;
— Rank R No.4 – demographic burden.

One of the most significant factors of direct effect on employment is demographic burden (Rank R No.4, Table 2.1), which is indicated by the number of persons under and over the working age per 1000 capita.

The demographic burden increased in Latvia in the period from 2010 to 2012. The difference in demographic burden among the statistical regions is comparatively small. In 2012, the demographic burden in the regions of Vidzeme and Latgale was higher than on average in the entire Latvia, while in the other regions it was lower.

Table 2.2

Average share of the population by age group in Latvia and its regions in 2008-2011, %

Region	2008			2009			2010			2011		
	Under working age population	Working age population	Over working age population	Under working age population	Working age population	Over working age population	Under working age population	Working age population	Over working age population	Under working age population	Working age population	Over working age population
Riga	12.3	66.1	21.6	12.5	66.4	21.1	12.7	65.9	21.4	12.9	65.4	21.7
Pieriga	15	66	19	15.1	66.6	18.3	15.2	66.4	18.4	15.3	66.2	18.5
Kurzeme	15.1	64.6	20.3	14.9	65.3	19.8	14.8	65.3	19.9	14.6	65.2	20.2
Vidzeme	14.3	64.6	21.1	14	65.5	20.5	13.7	65.7	20.6	13.5	65.7	20.8
Latgale	13.1	65.7	21.2	12.9	66.4	20.7	12.9	66.4	20.7	12.7	66.3	21
Zemgale	14.8	65.7	19.5	14.5	66.5	19	14.4	66.5	19.1	14.3	66.4	19.3
On average in Latvia	14.1	65.45	20.45	13.98	66.12	19.90	13.95	66.03	20.02	13.88	65.87	20.25

Source: authors' construction based on CSB data

Table 2.3

Average gross monthly wage in the public sector in Latvia and its regions in 2006-2011

Region	2006	2007	2008	2009	2010	2011	Change (+/-) 2011/2006, %
Riga	409	552	659	585	548	579	41.56
Pieriga	333	455	530	465	435	449	34.83
Vidzeme	280	376	459	413	374	384	37.14
Kurzeme	289	390	466	421	383	395	36.68
Zemgale	289	394	476	412	377	392	35.64
Latgale	261	350	427	375	347	360	37.93
Latvia	**350**	**474**	**564**	**504**	**470**	**492**	**40.57**

Source: authors' construction based on CSB data

According to the experts, a significant factor of direct effect on employment was also the number of the working population (Rank R No.2, Table 2.1).

According to Table 2.2, the share of the working age population has started to decrease since 2009, whereas the share of the above-working-age population has increased. In 2011, the highest share of the under-working-age population (15.3%) existed in Pieriga region, whereas in Latgale region this indicator was the lowest – 12.7%.

One of the factors causing the decrease in the number of the working age population was migration. According to statistics, totally 48774 persons emigrated from Latvia in 2010, which was almost 3% more than in the year before. Regionally, the trend was the same – the number of emigrants increased. The number of emigrants decreased only in Riga region, by 4.7%, in 2010 compared with 2009 (Long-term migration...).

A significant factor affecting employment was the number of enterprises (Rank R No.3, Table 2.1). In the period 2006-2011, the number of economically active market sector statistical units increased in all the regions. In 2011, the greatest number of economically active market sector statistical units operated in Riga region (55314 or 39.1% of their total number), followed by Pieriga (22175 or 15.7%), while the smallest number was in Zemgale (14304 or 10.1%).

In 2011 in Riga and Pieriga, the majority of these units were companies – in total, there were 42094 companies in Riga region, which accounted for 76% of the total number of economically active market sector statistical units registered in this region, while in Pieriga there were 11332 companies, accounting for 51% of their total number in this region. Yet, in all the other regions in 2011, the majority consisted of self-employed persons.

The number of economically active market sector statistical units per 1000 capita also increased in the period 2006-2011. In 2011, it increased 40% in Riga region, while in the entire Latvia it increased by 33%.

According to the experts, employment was significantly affected by the wages and the number of jobs (Rank R No.1, Table 2.1). An analysis of the average gross wage by region both in the public and in the private sector showed that there was inequality among

Table 2.4

Average gross monthly wage in the private sector in Latvia and its regions in 2006-2011

Region	2006	2007	2008	2009	2010	2011	Change (+/-) 2011/2006, %
Riga	317	410	492	495	483	503	58.68
Pieriga	268	354	432	423	418	432	61.19
Vidzeme	206	267	329	308	317	351	70.39
Kurzeme	228	308	381	366	381	392	71.93
Zemgale	216	282	344	335	340	379	75.46
Latgale	173	219	267	265	271	301	73.99
Latvia	**277**	**362**	**438**	**433**	**427**	**447**	**61.37**

Source: authors' construction based on CSB data

the regions. The unequal wage level also promoted the unequal development of employment in the regions, as people wish to work and live in a region where they can earn more.

In the period 2006-2011, the highest gross wage in the public sector was reported in 2008 – LVL 564. In 2008, the highest gross wage was reported in Riga region – LVL 659, whereas the lowest one was in Latgale region with LVL 427 (Table 2.3).

The greatest increase in the average gross wage in the private sector was observed in the regions of Zemgale and Latgale, 75.46% and 73.99%, respectively, whereas the smallest increase was observed in Pieriga region with 61.19% (Table 2.4). It may be explained by the fact that in 2006 the average gross wage in the private sector in Pieriga region was higher than in the regions of Latgale, Zemgale, Kurzeme, and Vidzeme.

A very significant factor was the number of vacant jobs. An analysis of the average number of vacant jobs in Latvia regions in the period 2006-2010 showed that the trend was negative. In 2011, the sharpest decrease in the number of vacant jobs occurred in Zemgale region – by 92.72%, while a slightly smaller decrease was observed in Latgale region with 79.37%.

In the aspect of providing jobs in Riga region in 2011, the most significant industry was trade along with lodging and catering services; in Vidzeme, this industry also had the greatest proportion of employees. In Kurzeme region, the greatest number of employed persons was reported in agriculture, forestry, and fisheries, whereas in the regions of Zemgale and Latgale, the greatest number of jobs was provided by manufacturing and the power industry.

In the period 2006-2011, the proportion of vacant jobs both in the private and in the public sector of Latvia and its regions tended to decline.

The Kendall's W test showed that one of the most significant factors of direct effect was the number of vacant jobs. Therefore, a correlation analysis was performed in the present research. A correlation indicates an association between two or among several variables (i.e., if one of the variables changes, then the other one also changes) (Arhipova I., Balina S., 2003). The present research was conducted to identify whether the number of vacant jobs influenced the number of employed persons.

In the correlation analysis, the authors used statistical data for the period 2005-2011. The calculation confirmed that there was a strong correlation between the number of vacant jobs and the number of employed persons in Vidzeme (r=0.81), Kurzeme (r=0.85), and Latgale (r=0.84). A medium strong correlation between the variables was observed in the regions of Riga (r=0.68), Pieriga (r=0.48), and Zemgale (r=0.71). With an increase in the number of vacant jobs, the number of employed persons in Latvia's regions also increased and vice verse.

Conclusions, proposals, recommendations

1. The employment of local residents is a topical problem in Latvia's regions. There is an economic and social need to promote employment both in Europe and in Latvia. The government has to promote the development of employment rather than the system of social benefits in the country.
2. The highest rate of employment, in the period of analysis, was in Riga region, whereas the lowest rate was reported in Latgale region. The government has to promote the equalisation of the employment rate in the regions of Latvia.
3. The findings, based on the expert method, showed that employment is directly affected by the following significant factors: number of jobs, wage, number of working population, number of enterprises, and demographic burden.
4. The number of the working age population has decreased in Latvia and its regions. The government has to elaborate effective measures hindering the decrease in the number of the working age population, including the decrease due to the emigration of the population to other countries.
5. An analysis of the average gross wage by region both in the public and in the private sector showed that there was inequality among the regions. The government has to eliminate the difference in wages in the public sector among the regions.
6. The correlation analysis showed that there was a strong correlation between the number of vacant jobs and the number of employed persons in Vidzeme, Kurzeme, and Latgale. A medium strong

correlation between the variables was observed in the regions of Riga, Pieriga, and Zemgale. With the increase in the number of vacant jobs, the number of employed persons in Latviah regions also increased and vice verse. By means of various government benefits and activities, the creation of new jobs has to be promoted to increase the number of employed persons in Latvia and its regions.

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ROLE OF MINERAL DEPOSITS IN THE NATIONAL ECONOMY OF LATVIA IN 1935 – 2011

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Abstract. Extraction of mineral deposits has quite a long history in Latvia; however, fundamental studies of available resources have been started only after the World War I. At various periods, the consumption of mineral resources has been mainly determined by the intensity of construction works. Besides, the sales of ready products in this sector and the value of the products sold to the European countries have increased following the transition to the market economy. In the article, the authors mainly analyse the trends of the utilisation of mineral resources for the construction needs and peat.
Key words: mineral resources, mining and quarrying, foreign trade, consumption of mineral resources.
JEL code: O44, O50, Q31

Introduction

Extraction of mineral deposits has quite a long history in Latvia; however, fundamental studies of available resources have been started only after the World War I (Latvijas zemes bagatibu…, 1939). During the 21st century, the amount of extracted mineral deposits for various needs has already reached several millions of cubic metres (in 2011, sand - 3.6 mln m^3, sand-gravel - 2.9 mln m^3, and dolomite - 1.6 mln m^3) (Derigo izraktenu ieguves…, 2012). The **research aim** is to analyse the dynamics of mineral deposits, mineral products, and their consumption since the 1930s in order to establish the major trends of external trade in mineral products over the time. The **following methods** were used in the paper: comparative analysis and synthesis, monographic analysis, and statistical data analysis. The main **research sources** include branch studies and analysis of statistical information.

Research results and discussion

Description of the mineral reserves and the extraction development since 1935

Mineral deposits present one of the driving forces of the global economic development. Besides, the global development is secured by both fossil fuel and mineral resources that are used in agriculture, construction, and other industries.

The first important research studies of mineral deposits in Latvia refer to the second half of the 19th century; they also encouraged the development of manufacturing industry and the expansion of the use of domestic resources. Earlier, the studies of mineral deposits had been carried out only for obtaining required construction materials for small-scale production. The research of mineral resources grew deeper when the Research Institute of Natural Resources (1936) was established and assigned the task of studying the properties, extent, and use of natural resources (Eiduks J., 1940).

The available data on mineral reserves during the 1930s are quite limited and this can be explained by the fact that it was the initial stage of the research. It should be noted that according to the estimations developed in geological survey studies in 1937, the reserves of freshwater limestone amounted from 532 100 m^3 in Bauska district to 676 650 m^3 in Liepaja district, and the approximate reserves of freshwater limestone in Talsi region were estimated to amount to 2.5 mln m^3 (Vitins J., 1939).

Within the framework of the economic model for the planning period of 1940-1990, the role of mineral deposits in the development of Latvia's national economy increased and this can be explained by the economic policy of that period. According to the statistics, the reserves of mineral resources, which can be used in constructions, amounted to the following levels at the end of the 1960s (Narodnoje hozjaistvo Latvijskoj..., 1972):

— dolomite for combustion - 102 mln t;
— dolomite for construction - 124 mln m^3;
— gravel - 220 mln m^3 (incl. 91% for concrete production);
— sand - 28 mln m^3 for brick production and 9 mln t for glass production;
— clay - 137 mln m^3 for brick, lightweight clay production;
— clay for the needs of the concrete production - 35 mln t;
— rock gypsum - 20 mln t.

The amount of the surveyed reserves increased in the beginning of the 1990s. In 1991, the reserves of major mineral deposits (total surveyed reserves available for extraction, approximately surveyed reserves, and eventual reserves) were as follows (Latvijas statistikas gadagramata..., 1992; 1994):

— dolomite - 616 mln m^3;
— limestone - 1551 mln m^3;
— gypsum - 95 mln t;
— clay - 375 mln m^3;

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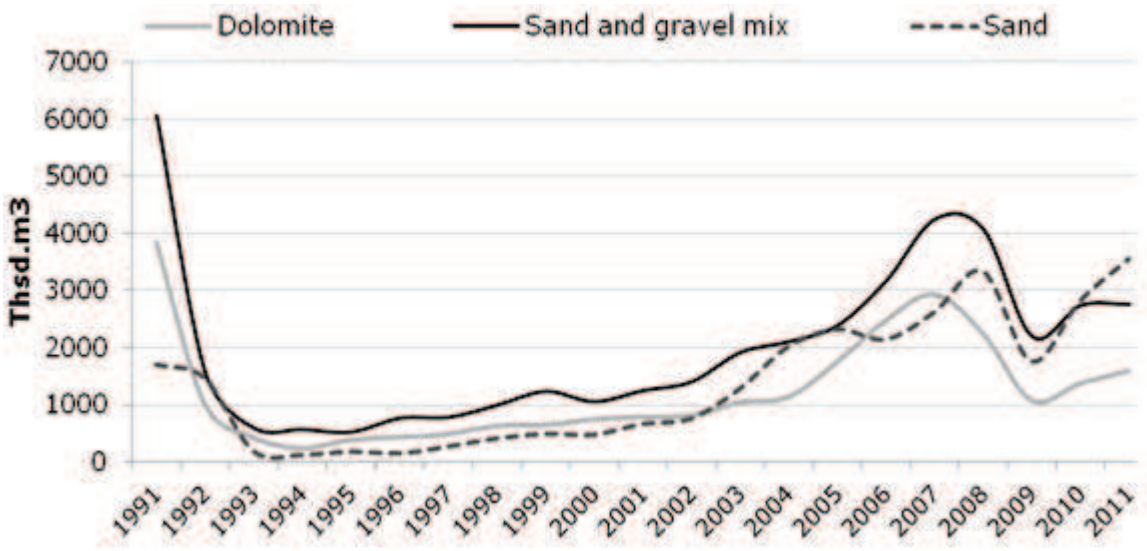
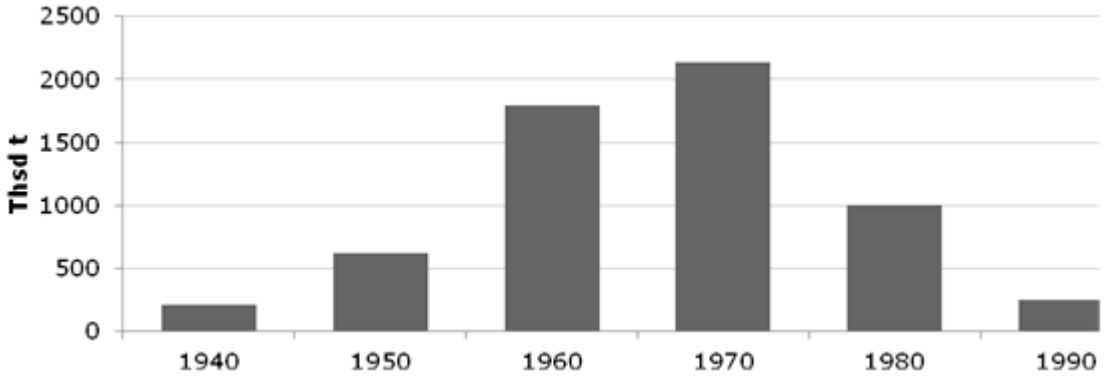


Source: Central Statistical Bureau database

Fig. 1. **Production of sand, dolomite and sand-gravel mix in Latvia in 1991-2011, thou. m³**



Source: Latvijskaja SSR v cifrah v 1969 godu (1971), Statistikas gadagramata 1993

Fig. 2. **Development of peat production in Latvia in 1940-1990, thou. t**

— sand - 248 mln m³;
— sand and gravel materials - 635 mln m³.

The reserves that were surveyed and estimated in 2008 were as follows: dolomite reserves 673.1 mln m³; gypsum - 92.2 mln t; limestone for concrete production - 504.9 mln t; clay for concrete production - 415.5 mln t; sand and gravel mixture - 1088.4 mln m³, and sand - 1162.6 mln m³ (CSB database).

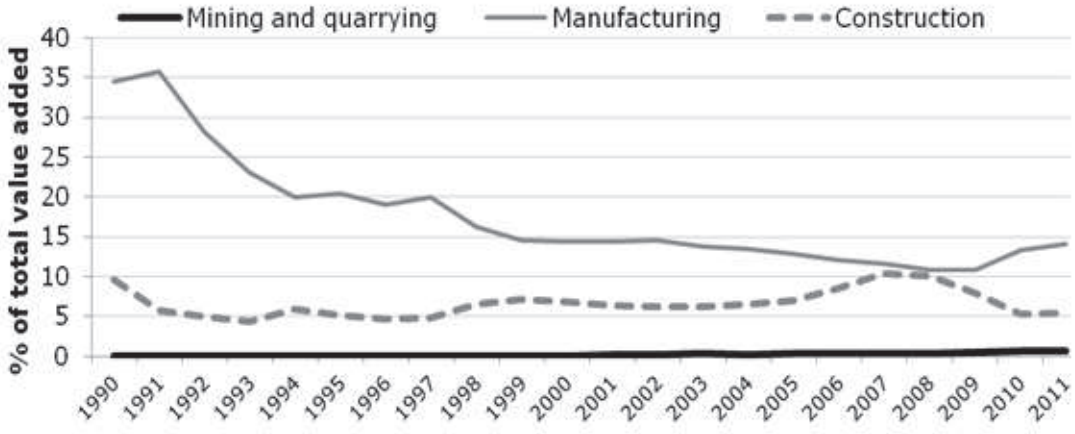
The comparison of the development of the extraction of dolomite and sand following the transition to the market economy reveals that the extraction of sand exceeds the level of 1991 and the extraction of dolomite and sand-gravel is still regaining lost capacities (Figure 1).

When the data are compared with those of 1995, it can be seen that the extraction of mineral deposits has increased multifold within the groups of dolomite as well as sand, gypsum, and sand-gravel mix.

Peat is also an important resource in the national economy. According to the estimations as of 1938, the reserves of dry peat in marshes (covering 10% of the territory of Latvia) amounted to approximately 2.412 billion tonnes and 70% of these reserves were found in marshes with the area above 100 ha. In the 1930s, peat was used as fuel, litter and for heat insulation plates; it was mostly used for the domestic market needs and a certain part was also exported (mainly litter) (Rupniecibas statistika, 1940).

In the 1960s, the surveyed reserves of peat in deposits exceeding 1000 ha were estimated at 724 mln t for energy needs (504 mln t of this amount were eventual deposits) and 66 mln t for heat insulation and litter needs. It should be noted that in 1960 the production of fuel peat in Latvia accounted for 3.3% of the total production in the Soviet Union, while in 1970, this figure was 3.7%, in 1980, it was 4.7%, and in 1989, it was 2.5% (Latvijas statistikas gada…, 1972; 1990).

The use of peat in the national economy of Latvia has considerably increased since the 1930s. In 1930, the production of peat amounted to 4.7 thou. t and in 1940, this amount was 213 thou. t, and, after reaching the peak level in 1970, it was decreasing until the transition to the



Source: authors' estimate based on the CSB; Share in the year 2011

Fig. 3. **Value added of manufacturing, extraction and construction sectors in Latvia in 1990-2011, as percentage of total (in current prices)**

market economy (Guljan P.V., 1967; Latvijas statistikas…, 1992).

In 1991, the estimated reserves of peat in marshes amounted to 481 mln t. In compliance with the data of 2008, peat reserves in Latvia amounted to 743.5 mln t.

The summary of obtained data leads to the conclusion that the use of mineral deposits in the national economy of Latvia was increasing and in the short-term, it fluctuated consistent with the level of activity of the construction and national economy of the relevant period.

The next chapter will provide a more detailed analysis on the use of resources for the needs of the industry during various time periods.

Trends of development of mineral extraction and manufacturing industries in 1935-2011

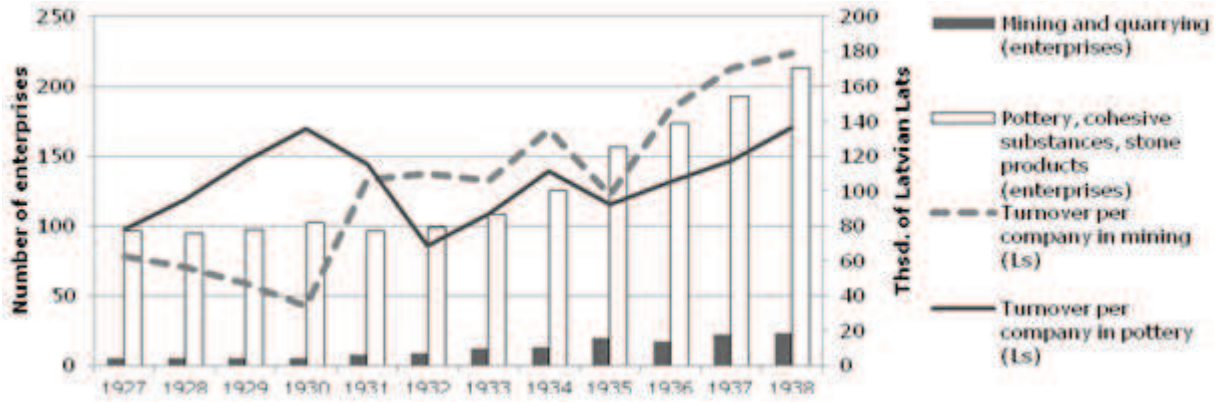
The contribution of the extraction industry to the total value added of the national economy of Latvia in the 21st century is small; however, it is growing. In 1990, the share of the extraction industry in the total value added amounted to 0.2%, it has been experiencing a moderate growth and reached 0.6% in 2010 (Figure 3).

The trends indicate that the number of people employed in the extraction industry has experienced a smaller decline than in the manufacturing industry in comparison with the year 1990 (in 2011, the number of employees in this industry was 30% below the level of 1990, and the decline in the manufacturing industry amounted to 70%).

Earlier statistics, which indicate the place and the role of the extraction industry in the national economy of Latvia, date back to the 1920s and more detailed data refer to the 1930s. According to the statistical data, thirty-one companies (with more than 5 employees) operated in the minerals production industry in 1920, of them there were 15 brick kilns, 9 glass factories, 3 rock processing companies, 2 cement factories, 2 mirror workshops, one dishes production workshop, and one pottery. In total, 903 persons were employed by these companies (Latvijas statistikas gada…, 1920). In comparison, ten years earlier, i.e. in 1910, there were 150 factories employing 12 000 employees in the sector "minerals production industry". The World War I caused adjustments in the number of manufacturing companies, thus, the proportion of factories operating in the mineral resources manufacturing industry amounted to mere 2% in 1920 compared with 19% of all the manufacturing companies in 1910. The proportion of employees in the mineral resources manufacturing industry amounted to 4% of the total number of employees in the manufacturing in 1920 compared with 13% in 1910 (Latvijas statistikas gada…, 1920).

It should be noted that already during the next year, i.e. in 1921, the number of companies in the mineral resources sector increased up to 43 and the number of employees almost doubled reaching the number of 1699. Brick kilns accounted for one third of the companies operating in the minerals industry and their total number was 16 out of which there were 8 clay potteries and clay dishes factories, 6 lime kilns, 6 glass factories, 5 companies engaged in rock processing, 3 mirror factories, and one cement factory. Glass and clay dishes factories accounted for the highest number of employees: 46% and 39% accordingly, the smallest number of employees was employed in mirror factories (1% of the total number). More than 50% of the companies were located in Vidzeme region (mainly in Riga), while there was the least number of companies in Latgale region. The distribution of the number of employees per region certifies that there were large companies with the average number of employees amounting to 111 per company in Latgale region, the average number of employees was 47 in Vidzeme region, it was 12 in Kurzeme region, and the number of employees per company amounted to 9 in Zemgale region (Latvijas statistikas gada…, 1922).

Generally, in the 1930s, the number of companies increased considerably both in the extraction industry and in the industry of processing of mineral deposits. The turnover level in each industry changed as well. In comparison with the total turnover of the manufacturing industry, the proportion of these sectors accounted to almost 5% during the period of 1936-1938 (Rupniecibas statistika, 1938).



Source: authors' estimation based on the Statistics of Manufacturing Industry 1938 (1940)

Fig. 4. **The number of companies and turnover per unit in the industries of extraction and processing of mineral resources**

Table 1

Use of mineral resources in the manufacturing industry in 1935-1938, in tonnes

Product/use	1935	1936	1937	1938
Clay	267.000	364.000	436.000	515.000
incl. brick production	*239.000*	*336.000*	*390.000*	*455.000*
Sand	23.800	29.500	38.800	43.600
incl. brick production and pottery	*15.000*	*15.300*	*18.000*	*19.000*
Dolomites	107.300	134.700	155.700	95.600
incl. building of motorways and unpaved roads	*46.000*	*65.000*	*70.000*	*no data*
Limestone	141.400	167.400	169.600	246.600
incl. production of Portland cement	*116.000*	*148.000*	*141.000*	*217.000*
Gypsum rock	111.000	137.000	218.000	222.000
incl. export	*83.000*	*96.000*	*157.000*	*162.000 (190.000*)*

*Mineral Statistics of the British Empire and Foreign Countries from 1936 to 1938

Source: Eiduks J., 1940

Development of the number of companies and turnover per employee in the industries of extraction and processing of mineral resources are displayed in Figure 4.

The extraction and the use of mineral resources experienced a stable growth in 1935-1938; it was related with the volume of construction works and the demand for construction materials on both the domestic and foreign market accordingly (Table 1).

At the end of the 1930s, mainly the mineral resources extracted in Latvia and imported raw materials, which were not available at the latitude of Latvia, were used for the needs of the manufacturing industry.

The activity level of construction affected the volume of production of construction materials, for example, the building of Kegums power plant promoted not only the production of domestic cement but also the increase of its import volume. The production of Portland cement amounted to 66.5 thousand tonnes in 1934 and it increased up to 147.1 thousand tonnes in 1938 (Rupniecibas statistika, 1940). The production of the biggest brick kilns amounted to 49.6 thousand bricks in 1934 and it increased up to 118.1 thousand bricks in 1938, thus, equalling the growth of 2.5 times.

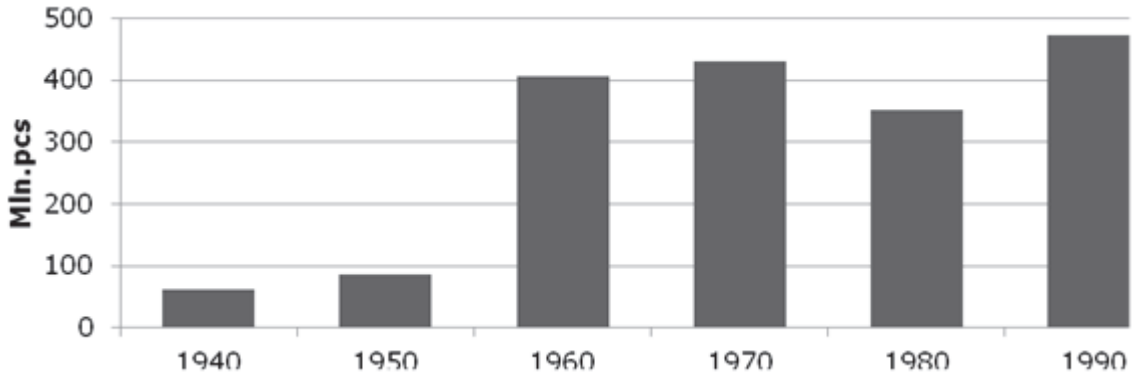
The volume and the value of external trade transactions grew considerably in the 1920s and the 1930s. In 1921, the export of minerals produced in Latvia amounted to 1240.9 tonnes and the export of mineral products amounted to 1072.8 tonnes. Lithuania and Finland presented the major markets for minerals, while Lithuania, Estonia, and Norway were the major markets for products. In 1937, the import of minerals amounted to 689 thou. t and the export amounted to 203 thou. t. In 1937, the import of mineral products amounted to 14 thou. t and the export amounted to 5 thou. t. Gypsum was among the export products in the 1930s, i.e. 200 thousand tonnes were exported by Latvia in 1938. At that time, Great Britain was a large producer and consumer of gypsum in Europe; it was also the biggest market for the gypsum from Latvia. The UK consumption of gypsum in 1938 was 1.3 mln t, of which 20% were imported (Mineral Statistics of…, 1939). In the 1930s, the mineral resources imported from Latvia

Table 2

Production of a few mineral products in Latvia in 1935 and 1938

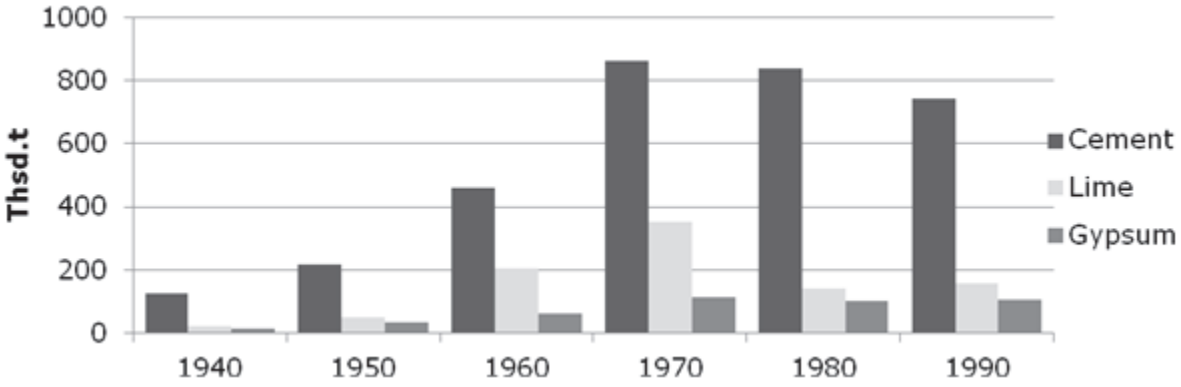
Product	Unit	1935	1938
Cement	thou. t	72	155
Lime	thou. t	26	51
Gypsum	thou. t	20	40
Plate glass	thou. m^2	676	880
Bricks	mln pcs	89	124
Slate	thou. pcs	899	8930

Source: Rupniecibas statistika 1938 (1940)



Source: Latvijskaja SSR v cifrah v 1969 godu (1971); Statistikas gadagramata 1993 (1994)

Fig. 5. **Production of bricks in Latvia in 1940-1990, mln pcs**



Source: Latvijskaja SSR v cifrah v 1969 godu (1971); Statistikas gadagramata 1993 (1994)

Fig. 6. **The development of the production volume of cement, lime, and gypsum in Latvia in 1940-1990, thou. tonnes**

included different clays, lime, and granite. Asbestos, various stones, bricks etc. were among imported products.

After the World War II, the extraction of mineral resources increased more rapidly in the 1960s with the increase of the volume of construction works. Within the framework of the planned economy, the value of the national income created by the construction sector was growing up to the end of the 1980s. The proportion of the new value created by this sector within the national income amounted to 5.9% in 1960, 7.5% in 1970, 7.1% in 1980, and 8.8% in 1989. The expansion of the construction caused the increase of demand for the materials used in the construction.

The volume of brick production increased rapidly in the 1960s and in 1990, it was 4 times above the level of 1938 (Figure 5)

The development of the cement production was similar (Figure 6). Its consumption in Latvia amounted to 1.2 million tonnes in 1990 and more than 60% of this volume was produced locally. For the sake of comparison: in 1970, the cement consumption in Latvia amounted to

approximately 1.04 mln tonnes and more than 80% of this volume were covered by the domestic production (Narodnoje hozjaistvo Latvijskoj…, 1972; Latvijas statistikas gada…, 1992). Lithuania was the major supplier of the required cement to the Latvian market, i.e. 76% of the total amount of imported cement of 475 thou. t in 1990.

In 1991-1995, both the extraction of mineral deposits and the production of products used in the construction decreased rapidly with the collapse of the planned economy. Walling materials could be mentioned as one of the examples - 585.8 mln pieces of conventional bricks were produced in Latvia in 1980, and 46.4 mln pieces were produced in 1994, while just 21.1 mln pieces were produced in 1996. It should be mentioned that the decline of production is related not only with the peculiarities of the transitional period and the decrease of the volume of construction works but also with the new trends of demand for construction materials.

According to the latest information, in 2011, the sales of construction sand exceeded 4 times the level of 2000; the sales of gravel, pebbles, shingle, and flint – 3 times; the sales of peat and peat briquettes – 2 times; the sales of tiles, flagstones, and similar articles of cement – 5 times; and the sales of ready-mixed concrete – 3 times (Sales of Manufactured…, CSB). Therefore, in 2011, the sales of peat and peat briquettes reached 1236 thou. t; the sales of construction sand - 1282 thou. t; the sales of gravel, pebbles, shingle, and flint - 3918 thou. t; the sales of tiles, flagstones, and similar articles of cement - 223 thou.t; and the sales of ready-mixed concrete - 1164 thou. t.

The foreign trade of mineral products has increased following the transition to the market economy. The export value of articles of stone, plaster, cement, glassware and ceramic products amounted to EUR 162 million in 2011, which is 12 times above the level of 1993. The EU-27 countries currently present the most important source of export income, while the trade with the CIS countries has decreased considerably and accounts for just 10% of the total export of stone and pottery products.

It can be concluded that the consumption of mineral resources has been mainly determined by the intensity of construction works at various periods. Besides, the sales of ready products in this sector and the value of the products sold to the European countries have increased following the transition to the market economy.

In order to gain an insight of the place of the extraction industry of Latvia among the EU Member States, the authors will analyse the indicators of the value added and productivity in Latvia and in other EU countries in the next section.

The indicators of the extraction industry in Latvia in comparison with the EU countries

The share of the extraction industry is not high in other EU countries and it amounts to 0.8% on average in the EU-27.[2] Sometimes the difference is significant among countries, for example, in Denmark, the mining and quarrying industry created 3.9% of the total value added, in the Netherlands, it was 3.7%, and in Poland - 2.8%. However, in most countries and also in Latvia, the share of this sector in the total value added is below 1%. On the EU level, this sector presents an important source of employment: 600 thousand employees were employed there in the EU-27 countries in 2010. In Latvia and in Lithuania, the employment accounted for 0.4% of the total, in Estonia, it was 0.8%, while it was 11-12% in Romania and Germany. In total, 20 thousand companies operated in this industry in the EU-27 in 2010, and the created value added exceeded the level of EUR 83 billion. There are the following leaders from the point of view of the newly created value in the industry: the UK with EUR 60 billion, the Netherlands with EUR 10 billion, and Poland with EUR 8 billion. In Latvia, the value added of this branch amounted to EUR 59 million or 0.1% of the EU-27 in 2010 (Annual Detailed Enterprise…, Eurostat).

The value added created by the industry of quarrying of stone, sand and clay in the EU-27 amounted to EUR 9 nill. in 2010 and 169 thousand people were employed by this industry. The value added of this sector amounts to EUR 13 million and approximately 650 employees are employed there in Latvia. In comparison with other countries, the level of productivity of this sector (value added per employee) in Latvia is similar to that in Lithuania and Estonia; however, it is considerably below the level of the old EU Member States. The highest productivity indicators in the EU are observed in the Netherlands, Luxembourg, and Denmark. In these countries, the gross value added per employee is 2-4 times above the EU-27 level of EUR 54.5 thousand. On average, the productivity of this sector in the EU-27 countries is 2.6 times above the productivity in Latvia. Investment rate per value added indicates the high proportion of investment in this sector in Latvia where it is almost double of the indicators of Sweden, Belgium, and Austria (Annual Detailed Enterprise…, Eurostat).

In 2010, 6300 companies operated in the sector "Quarrying of Ornamental and Building Stone, Limestone, Gypsum, Chalk and Slate" in the EU-27 countries and they created the value added in the amount of EUR 2.8 billion. The latest comparable statistical data certify that the value added of this sub-sector in Latvia amounted to EUR 5 million in 2006. Ten companies in Latvia operated in this sector in 2008.

Fifty-four companies in Latvia (2 thousand companies in the EU-27) operated in the extraction industry of mineral resources not classified elsewhere and the created value added amounted to EUR 47 million (EUR 2.2 billion in the EU-27).

The value added of the peat extraction industry amounted to EUR 45 million or 8% of the EU-27 indicator in Latvia in 2010. Based upon the productivity indicators in the sector, Latvia with the gross value added per employee amounting to EUR 22.7 thousand is among countries with the lowest productivity (EUR 13.7 thousand in Lithuania, EUR 11.7 thousand in Hungary, EUR 3.3 thousand in Romania, and EUR 2.4 thousand in Bulgaria). Thereby, the productivity of this sector in Latvia is twice as low as the EU-27 indicator (EUR 52 thousand).

[2] In this section, the insight into the extraction industry is based upon the latest comparable Eurostat data on the year 2010

Conclusions

1. After the evaluation of the industry data, it can be concluded that the extraction industry just started to establish itself on the industrial level at the beginning of the 20th century.
2. During the observed period of 1935-2011, this industry served mainly as a source of domestic resources for the construction market.
3. Following the transition to the market economy, the industry experienced a short-term crisis; however, it is characterised by a high volume of extraction and use of mineral resources for both the needs of the domestic market and the satisfaction of the external demand.
4. The productivity of peat extraction industry in Latvia is twice as low as the EU-27 indicator; industry of quarrying of stone, sand and clay productivity in the EU-27 on average is almost three times larger than in Latvia.

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EXPORT AND IMPORT DYNAMICS OF MINERAL RESOURCES IN LATVIA IN THE PERIOD OF 2000-2012

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Abstract. Mineral resources are among the most important natural resources of Latvia and they are widely used both on the domestic market as a fuel; a raw material for construction, production of construction materials, in agriculture and metallurgy; and they are exported as well. According to the data of the Central Statistical Bureau, in 2011, the export of mineral products accounted for 9.1% of the total export of goods from Latvia; and the demand for various mineral resources available in Latvia (cement, dolomite, gypsum rock etc. that can be used for the production of construction materials) is increasing every year.
This article aims to present an analysis of the development of the external trade on non-metallic mineral products across various product groups during the period from 2000 to 2012. The major export markets (regions and countries) and groups of products as well as the major sources of import have been identified as a result of the analysis. The conclusions of the article summarise the measures that are required for ensuring sustainable use of Latvian mineral resources in the medium term, since the potential of mineral resources of Latvia is not fully utilised either for the satisfaction of domestic needs or for export.
Key words: mineral resources, export and import balance.
JEL code: O44, O50, Q31

Introduction

In comparison with other countries, the range and the volume of natural resources available in Latvia is small, thus, a part of the required resources has to be imported. Natural gas and oil products are fully imported, also almost one third of the needed electricity is imported. However, versatile non-metallic mineral resources, which are important for the development of the construction, agriculture, and other related sectors, can be found in the earth of Latvia. The reserves of sand and sand-gravel, dolomite, clay, limestone, gypsum rock, peat and sapropel are widely available. According to the data of the Latvian Environment, Geology and Meteorology Agency (LVGMA), at the current level of extraction, the reserves of dolomite, gypsum rock, sand and gravel would last for approximately two thousand years; those of clay for six thousand years, limestone for eleven thousand years and peat for more than one thousand years (Regionalas attistibas un pasvaldibu lietu ministrija, 2006). Mineral products present an important group of the Latvian export products that contribute to the growth of the Latvian GNP. The growth of the export of mineral products has been 17-fold in Latvia since 2000 and their share in the export volume has increased accordingly (in 2000, the export of mineral products accounted for 2.7% of the total export of goods from Latvia and in 2011, this figure had increased up to 9.1%). However, the import of mineral products exceeds the export considerably; thus, the issue of attaining the balance of external trade and securing sustainable use of the Latvian mineral resources is topical. This **article aims** to present an analysis of the development of the external trade on non-metallic mineral products across various product groups during the period from 2000 to 2012. The following **tasks** are set to achieve this aim: to analyse development of the import and export of mineral products and the structure thereof in Latvia during the period from 2000 to 2012; to identify the most important export and import markets and product groups of the Latvian mineral products; and to establish the factors restricting broader use of domestic mineral resources in the economic activities.

The extraction of mineral resources causes local negative impact upon the environment by destroying natural habitats, degrading the landscape, causing the fluctuations of the underground water level and the deterioration of its quality. Therefore, the environmental impact of non-metallic mineral resources presents a controversial and topical issue within the global dimension and increased attention should be paid to it in Latvia as well, in particular, related with the development of new extraction pits.

The **methods** of analysis and synthesis, reference, and dynamic rows have been used for the data assessment. The main **research sources** include the information available in the databases of the CSB and Eurostat, the studies and reports by the Latvian Environment, Geology and Meteorology Agency, the publications by the Ministries of Economics and Regional Development and Municipalities of the Republic of Latvia, and the programming documents of Latvia and the EU etc., including the NDP (National Development Plan) of Latvia 2007-2013, Sustainable Development Strategy of Latvia "Latvia 2030", the EU Strategy "Europe 2020" etc. The article does not cover all the aspects related with the external trade, including the legislation, and the factors

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defining the export and import changes (the currency exchange rate, customs rates, trade restrictions etc.).

Research results and discussion

1. Importance of the external trade in the national economy of Latvia

Latvia is a small country with restricted resources of domestic raw materials and it cannot specialise in the production of a broad range of goods. Therefore, most of goods have to be imported and the external trade has always been and will be important in the development of the national economy of Latvia. The external trade balance (export-import balance) impacts both the GDP and other indices of the economic development, like employment and unemployment, inflation, interest rates, the currency exchange rate etc., thus, the trade balance presents an important index of the national economic independence and development (Sulca O., Sproge I., 2009). The external trade allows each country to use its resources in a more comprehensive manner, providing a versatile range of goods and services to its residents and the required raw materials as well as modern machinery and technologies to its producers (Olevskis G., 2003). Thus, the external trade contributes to the fast and advanced economic growth of a country presenting the basis for the improvement of the people's standard of living and improvement of welfare. Since the restoration of the national independence, the export of goods and services has amounted to approximately 45% and the import to above 50% of the GDP. More than 70% of export and import transactions of Latvia currently relate with the EU countries, Russia and the other CIS countries also present an important trade partner. Generally, Latvia engages is external trade transactions with more than 190 countries, the biggest trade partners of Latvia in 2012 included Lithuania, Estonia, Russia, Germany and Poland, and their respective share in January-September 2012 amounted to 53.9% of the total export volume of the countries and 57. 3% of the total import volume of the countries (Latvijas areja tirdznieciba…, 2012). Export has played an important role in the recovery process of the national economy of Latvia following the global financial crisis. In 2010, the contribution of export in the GDP change amounted to 5.4% and in 2011, it was 6.6% (Economic Development of Latvia, June 2012). The export volumes of goods and services have currently reached the historically highest level and continue to undergo growth. The increase of the Latvian export of goods and services (in constant prices) amounted to 12.6% in 2011, and during the first three quarters of 2012 (compared with the relevant period of 2011) the export increased by 9.2%. The fastest export growth (in current prices) in 2012 referred to the product groups of drinks and also electrical devices and electrical equipment (43.9% and 29.6%, respectively); however, the export of pharmacy products and vehicles decreased during the period of January-September 2012 (by 18.6% and 12.7%, respectively) (External Trade of Latvia…, 2012). The development of external trade of Latvia is promoted by the comparatively well developed transport infrastructure, which allows (Latvia) to be part of the economic processes of both the Scandinavian and the Central and Eastern Europe countries. Still there is a range of unsolved issues, hindering conditions and factors that impede the development of external trade of Latvia and restrict the competitiveness of Latvia. The external trade balance of Latvia has been negative since 1993 because the import of goods has exceeded the export of goods considerably. It is partially compensated by the positive balance of services; however, the value of the balance of services is lower than the negative balance of goods (it covers only 50% of the external trade deficit), resulting in the deficit of the current account of the balance of payments (BOP) of Latvia. Although during the crisis period (2008-2010), the position of the current account of the balance of payments improved (in the 2nd quarter of 2009, the surplus of the current account in Latvia reached its historically highest level, i.e. 13.6% of the GDP) along with the decrease of import. However, this does not indicate any stable trends, because along with the increase of economic activity the import development becomes faster resulting in the worsening of the current account balance (in the 3rd quarter of 2012 the deficit of the current account amounted to 1.8% of the GDP) (Latvijas Bankas datubaze). Moreover, the unemployment in Latvia is high, thus, in the near future attention should be focused on increasing the export volume, searching for new sales markets outside the EU, and securing the improvement of the quality of goods and services of Latvia and improvement of their competitiveness as well as ensuring favourable conditions for the free movement of goods and the development of external trade within the EU. The competitiveness of export also largely reveals the quality of life of the community, as the export characterises the internal processes of the country and its society, and indicates to what degree the current policy and the society structure guarantees the long-term international competitiveness and also welfare.

2. Development trends of the external trade of Latvia from 2000 to 2012

The analysis of the external trade of Latvia (from 2000) may result in distinguishing of several stages with different characteristic development trends:

1) 2000 - 2003, when reforms were initiated to ensure that Latvia could join the economic area of the EU and handle the EU competitiveness pressure;
2) 2004 - 2007, when rapid and dynamic development of external trade took place based upon the increase of both the domestic and external demand, at the same time, the deficit of the trade of goods and the balance of payments were increasing rapidly;
3) 2008 - 2010, when the national economy of Latvia encountered the economic crisis which was promoted by structural, cyclic and external environment factors, and which caused a rapid decline of the GDP as well as the volume of external trade and the current account deficit;
4) starting from 2011, when the national economy is undergoing stabilisation, the GDP, export and import volumes are gradually increasing.

During the first stage (from 2000 to 2004) Latvia experienced a rapid economic development (the average annual GDP growth equalled 7.5%) which encouraged also the development of external trade. The annual growth of the volume of the export of goods of Latvia during the time period from 2000 to 2002 (in current

Table 1

Export and import of goods of Latvia in 2004 - 2007 (in current prices, mln LVL)

Year	Export	Import	Balance of the trade of goods	Balance of the trade of goods in relation with the GDP (%)
2004	2 278.1	3 781.1	–1 502.9	-20.2
2005	3 031.3	4 746.3	–1 715.1	-19.1
2006	3 431.8	6 288.2	–2 856.4	-25.7
2007	4 214.4	7 750.5	–3 536.1	-24.0

Source: authors' estimations based on the data of the balance of payments (database of the Bank of Latvia)

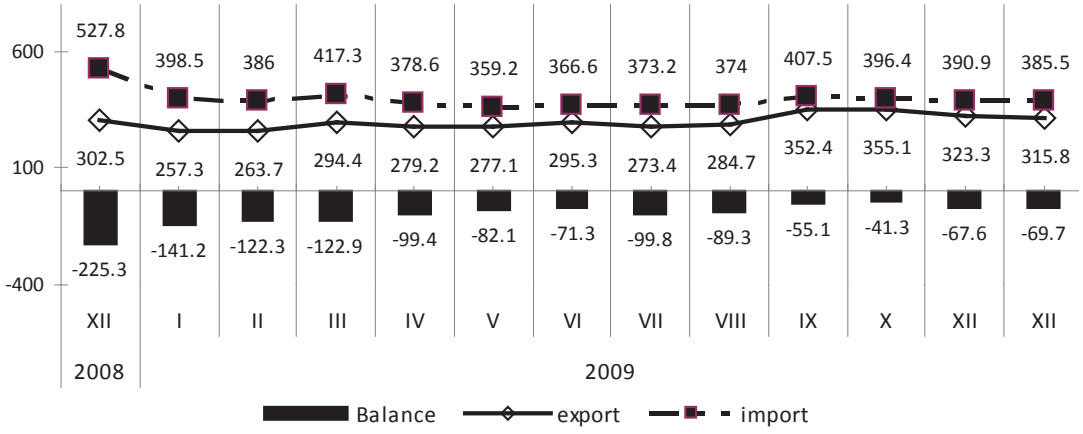
prices) amounted to 11-12%, in 2003, this growth was 17%; at the same time import was also growing (by 13% in 2002 and by 19.7% in 2003); thus, the negative trade balance of Latvia deteriorated further. During this period, there were no considerable changes in the structure of external trade or its distribution by countries or product groups. The EU-15 countries, the other Baltic States and the CIS countries were the major trade partners. Wood and its products as well as vehicles, metal processing and machinery products dominated in the export of goods. Metal processing and machinery products, products of the chemical industry and related sectors were the major product groups in the import of goods (the CSB database).

A rapid increase of the export of goods and services was experienced after Latvia joined the EU. During four years following the joining of the EU, the average annual increase of export of goods was 23% and that of services was 22% (the database of the Bank of Latvia). During the first two years following the joining of the EU, the dominance of import over export decreased along with the increase of export (in 2004, import exceeded export by 66%, in 2005 - by 56.6%). However, the dominance of import over export again increased up to 83% in 2006 and 2007 due to the decline of the speed of the export growth (Table 1). Therefore, the deficit of the trade balance of goods also increased simultaneously deteriorating the status of the current account of the balance of payments (deficit of the current account of the balance of payments exceeded the level of 22% of the GDP both in 2006 and 2007).

Following the enlargement of the EU the structure of the external markets of Latvia experienced considerable changes: the external trade with the 10 new EU Member States increased much more rapidly and the cooperation with the EU-15 countries did not change a lot. This was conditioned by the slow growth of the national economies of the Western Europe and the comparatively low demand in these countries. Generally, the increase of the Latvian export to the 10 new EU Member Stated in 2004 –2005 amounted to 70% on average annually, and in 2006 and 2007, the average annual increase amounted to 30%, besides, the increase of export to Lithuania and Estonia accounted for 90% of this. In comparison with 2003, the external trade (export and import) with Lithuania and Estonia increased threefold and at the end of 2007, it accounted for more than 30% of the total trade volume with the EU countries. The structure of the export of goods also changed. Although the share of wood and its products in the total volume of the export of goods had been decreasing since 2004, wood, and agriculture and food products accounted for a major share (above 30%) of the total export volume, and the intensity of the export of goods with higher value added was very low in Latvia in both 2004 and 2007. The ratio of the export of goods and services to the GDP did not change a lot during these years either (in 2007, the ratio of the export of goods to the GDP equalled 28.6% and the ratio of the export of services to the GDP was 12.8%, i.e. the ratio of the export of goods to the GDP even decreased by 2.1 percentage points compared with 2004).

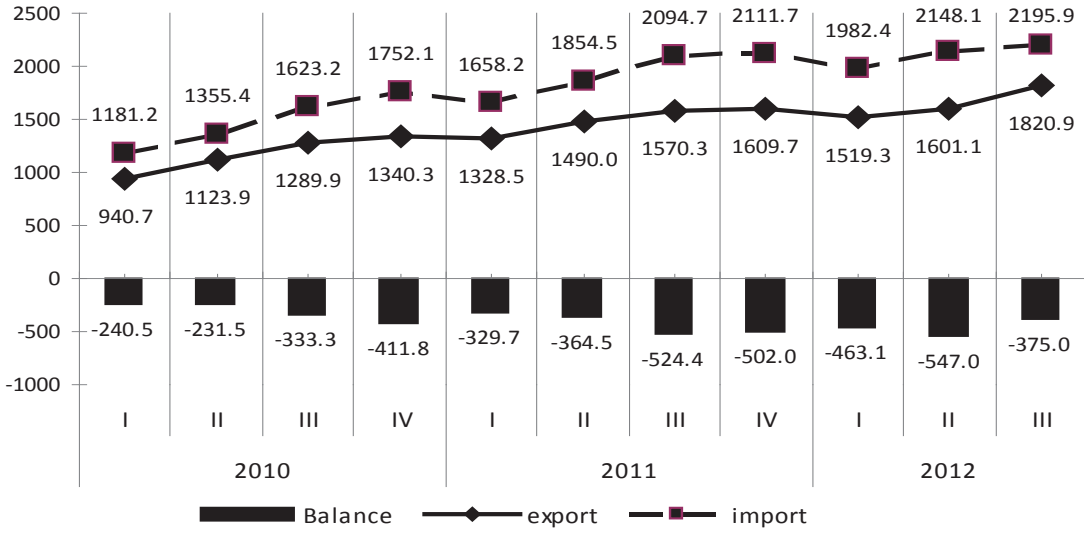
In 2008, along with the economic recession, both in Latvia and globally, the trend of decrease of both export and import dominated and intensified at the end of the year, with the decrease of the deficit of the trade balance or the dominance of import over export. Similar trends prevailed in the beginning of 2009, and in the middle of the year the situation got more stable and the export of goods even started to experience some growth. However, the growth of export was restricted by the decline of the external demand and the intensification of competition on the external markets. The possibilities of gaining positions on new markets had shrunk considerably. Similar to the preceding three years, export to the CIS countries and the other countries was growing faster than that to the EU countries. The decline of the domestic demand, in particular for goods with long-term usage, determined the decline of import, which commenced during the second half of 2007. In 2008, the decrease of import amounted to 4.1%, besides the decrease of import exceeded that of export, and this situation lasted until the 2nd quarter of 2009. Vehicles, machinery and equipment as well as wood and its products dominated in the declining groups. Only the increase of the import of mineral products and agriculture and food products was meaningful. Along with the decline of import its dominance over export decreased from 92.6% in 2007 to 69.9% in 2008, and the negative trade balance decreased by 18% (the CSB database). In 2009, the total turnover of the external trade was LVL 3750.7 mln or 31.4 % below the level of 2008. Export decreased by almost 20% and import decreased by almost 40%, thus, improving the balance of the external trade of Latvia (Figure 1).

The improvement of the trade balance had a positive impact upon the current account of the balance of payments of Latvia where there was a surplus at the end of the year (8.3% of the GDP). The structure of the Latvian export also changed slightly as regards the groups of countries. The share of the EU-15 countries decreased to 35% and the export of Latvia to other countries experienced a slight growth (by 2%). The fact that as of the mid-2009 the export has not been declining



Source: CSB database

Fig. 1. **Development of the export and import of goods of Latvia per month in 2009 (current prices, mln LVL)**



Source: Latvijas areja tirdznieciba..., 2012

Fig. 2. **External trade of Latvia by quarters in 2010 - 2007 (in current prices, mln LVL)**

further and the growth of export could be seen in 2010 should be mentioned as a positive trend. The export volume (in current prices) increased by 30% compared with 2010, and the growth has been 6% compared with the pre-crisis level, the year 2008 (20% and 9% based upon the constant prices accordingly). The import growth also recommenced (the increase of 25.5% according to current prices and 15.6% according to constant prices); however, it was still considerably below the top pre-crisis level which was achieved in 2007 (in 2010, import exceeded export by mere 26%). Although the import volume increased, the current account of the balance of payments remained positive in 2010 (the overall surplus of the current account amounted to 3.6% of the GDP (the database of the Bank of Latvia)).

In 2011, the export of goods of Latvia in current prices increased by 28% compared with 2010 (by 14% in constant prices). The growth of the export of goods continued also in 2012 (Figure 2). Due to the impact caused by the change of the prices of goods, the volume of export, in constant prices, increased by 9.2% during the period of January-September 2012 compared with the period of January-September 2011, while import increased by 4.3% during the relevant period.

Wood and wood products, charcoal, iron and steel as well as mineral products were the major export goods of Latvia in 2012. Wood and wood products, and charcoal were mostly exported to Sweden (14.5%), the United Kingdom (13.1%), and Germany (11.6%); iron and steel were exported to Poland (24.1%), Algeria (14.9%), and Turkey (14.7%); mineral products - to Poland (21.7%), Lithuania (21.1%), and Afghanistan (16.6%). Mineral products, mechanisms and mechanical devices, and electrical devices and electrical equipment dominated in the import structure of Latvia in 2012. During the period of January-September 2012, mineral

Table 2

Development of the export and import of mineral products in Latvia from 2000 to 2012 (thou. LVL, current prices)

Year	Total export	incl. mineral products	Share of mineral products in the total export (%)	Total import	incl. mineral products	Share of mineral products in the total import (%)
2000	1131315	30670	2.7	1933935	249397	12.8
2001	1256402	21249	1.7	2201565	245058	11.1
2002	1408816	24058	1.7	2497386	243187	9.7
2003	1650630	26419	1.6	2989166	296857	9.9
2004	2150027	114114	5.3	3805258	481649	12.6
2005	2888234	265229	9.2	4867011	752828	15.5
2006	3293210	182157	5.5	6378477	854771	13.4
2007	4040293	165426	4.1	7780231	896674	11.5
2008	4428945	184029	4.1	7527687	1171231	15.6
2009	3602243	199629	5.5	4709779	808586	17.1
2010	4694885	283115	6.0	5911949	907637	15.3
2011	5998518	548649	9.1	7719105	1337932	17.3
2012 I–IX	4941300	457900	9.3	6326400	1160000	18.3

Source: CSB database

products were mostly imported from Lithuania (39.7%), Russia (24.3%), and Belarus (15.2%); mechanisms and mechanical devices were imported from Germany (22.0%), Lithuania (9.9%), and Estonia (7.6%); while electrical devices and electrical equipment were imported from Germany (11.0%), Lithuania (10.7%), and China (10.5%).

3. Export and import of mineral resources in Latvia from 2000 to 2012

Mineral products present an important group in the external trade of Latvia. According to the combined nomenclature of goods (CN), the group of mineral products covers the following: salt; sulphur; earths and stone; plastering materials, lime and cement (Chapter 25), ores; slag and ash (Chapter 26), mineral fuels; mineral oils and products of their distillation; bituminous substances; and mineral waxes (Chapter 27) (Intrastat, 2013). During the period of January-September 2012, the export of mineral products accounted for 9.3% of the total export of goods and presented the third most important product group within export; besides mineral products are the leading group of products in export accounting for almost one fifth of the total import of goods (Latvijas areja tirdznieciba…, 2012). The importance of mineral products in the external trade of Latvia has increased considerably since 2000, in particular, following the accession to the EU (Table 2). Still, it has to be noted that during the whole studied period the import of mineral products has been exceeding the relevant export volume and this is determined by the different structures of export and import.

Mainly cement, gravel, gypsum rock, gypsum and other non-metallic mineral products which are used in the construction and which are comparatively cheap are exported from Latvia to other countries. Latvia imports oil products (gasoline, diesel, HFO), natural gas, electricity and other energy resources from other countries, and the share of non-metallic mineral products in the total import volume is comparatively low (salt and various materials required for the construction are imported to Latvia). As the analysis of the development of the external trade of non-metallic mineral products was set as the aim of this article, the further analysis will not cover oil products and other product groups of Chapters 27 and 26 of the CN and will focus on the product groups of Chapter 25 of the CN only. Three products dominated in the export in the product group of non-metallic mineral products in 2012: cement (2523), gypsum rock, gypsum (2520), and salt (2501); as regards the import - the dominating products were gravel, pebbles (2517), salt (2501), and cement (2523). The comparison of the structure of export and import goods shows that there have been no considerable changes (if compared with 2000). In 2000 also, the first two positions in the export belonged to cement and gypsum rock, gypsum and the third position was taken by gravel, and pebbles (2517); as regards the import - the first position went to gravel, and pebbles, the second - to cement and the third - to salt (Tables 3 and 4).

The review of the development of the three major export products over years reveals that the income from exports of cement as well as gypsum rock and gypsum has been fluctuating a lot on the external markets during the time period from 2000 to 2011 (Figure 3).

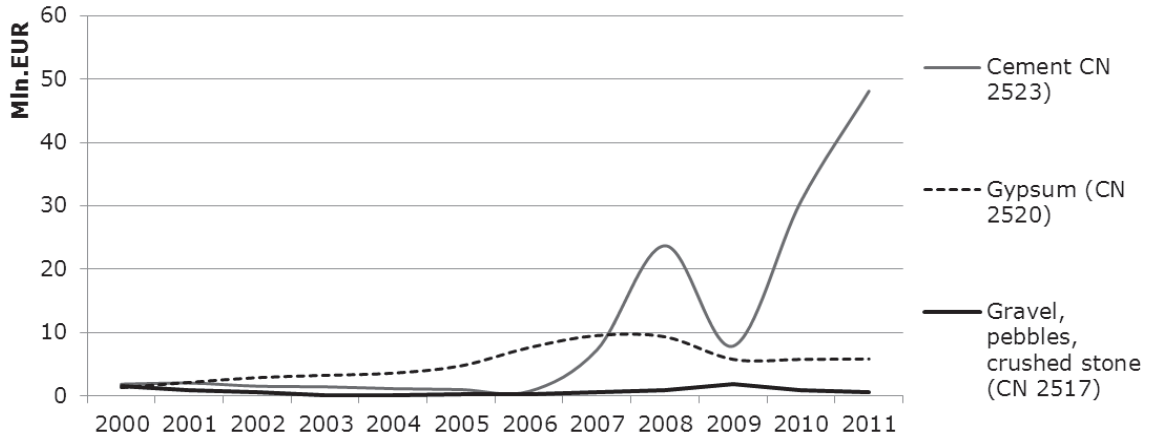
As it can be seen from this figure, the export income of cement has increased rapidly in 2007 and 2008, then it sharply decreased in 2009 due to the economic crisis

Table 3

Export volumes of the major non-metallic mineral products of Latvia (EUR)

	2000	2005	2011	2012 (January-October)
Cement	1882195	1031128	48089907	40018727
Gypsum	1336031	4780413	5854969	6175637
Salt	60091	1167456	2691240	1990222
Gravel, pebbles, crushed stone	1540339	221028	688267	443920
Chalk	4	20186	308638	116053
Clay	992	28035	224839	34148
Sand	77951	221605	193604	211665
Granite, sand rock, stones for construction	795	122968	32304	441568
Dolomite	513	4752	19047	6710
Quicklime, slaked lime	130	0	16366	6823
Magnum carbonate, magnesium	0	0	2657	4144
Limestone	0	15732	598	0
Total	**4899041**	**7613303**	**58122436**	**49449617**

Source: Eurostat



Source: authors' estimations based on the Eurostat data

Fig. 3. **Development of export income from specific mineral products in Latvia (EUR) from 2000 to 2011**

and increased quite rapidly again in 2010 and 2011. The export income from gypsum rock and gypsum experienced moderate growth up to 2008, when it decreased and had not regained the pre-crisis level until 2011. Similar trends can also be seen in the import expenditures on mineral products.

When the development of the three major products per years is reviewed, it can be seen that the import expenditures and volumes of cement have decreased rapidly since 2008, and this can be explained mostly by the activity of the construction sector. Also during the crisis (in 2009 and 2010), the import expenditures (and imported volumes) of gravel and pebbles decreased; however, as of 2011 they have been increasing again, although at a more moderate speed than during the period of the rapid growth (from 2004 to 2008), and this can be seen clearly in Figure 4.

The major export and import partners have been stable during the period from 2000 to 2012. Latvia is mostly cooperating with the neighbouring countries: Lithuania, Russia, Belarus, Estonia, and Finland (Table 5).

According to the data summarised in Table 5, Russia is the biggest export market for the Latvian cement, it is followed by Finland, and Estonia is the main partner of Latvia as regard the import of cement. Gravel and pebbles are mostly exported to Lithuania, while Norway is the main import partner, followed by Lithuania, Sweden, and Estonia. Lithuania and Estonia present the main sales markets for gypsum rock and gypsum from Latvia.

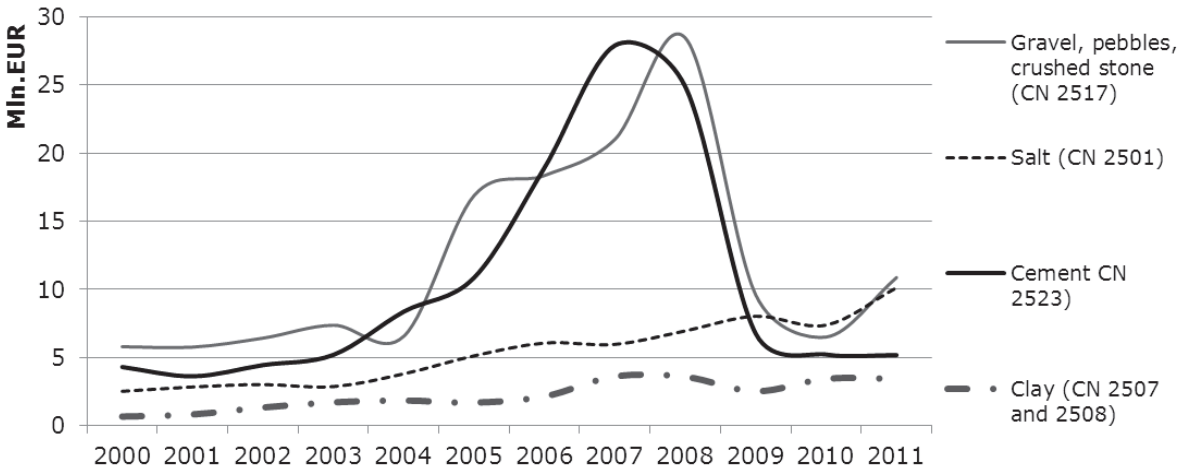
Generally, the evaluation of the export and import of non-metallic mineral products of Latvia during the time period from 2000 to 2012 leads to the conclusion that it has been fluctuating and dependent upon the

Table 4

Import volumes of the major non-metallic mineral products of Latvia (EUR)

	2000	2005	2011	2012 (January-October)
Gravel, pebbles, crushed stone	5801287	16888481	10870530	12481346
Salt	2535462	5135188	10125815	6608059
Cement	4313441	10873670	5185492	4663154
clay	680571	1709574	3452852	2813955
Granite, sand rock, stones for construction	1261434	3263201	3137495	835998
Sand	833336	1183556	1331164	1297379
Gypsum	809303	793627	1011604	818908
Magnum carbonate, magnesium	542465	523360	739915	2375192
Chalk	194170	152348	502053	809660
Dolomite	116078	1359698	348662	172140
Limestone	682338	424092	329731	545946
Quicklime, slaked lime	49354	232530	292143	403849
Total	**17819239**	**42539325**	**37327456**	**33825586**

Source: Eurostat



Source: authors' estimations based on the Eurostat data

Fig. 4. **Development of import expenditures on specific mineral products in Latvia (EUR) from 2000 to 2011**

Table 5

Largest export and import markets of the major mineral products of Latvia in 2012 (January-October) (EUR)

Countries	Export of cement	Import of cement	Export of gravel, pebbles	Import of gravel, pebbles	Export of gypsum rock, gypsum	Import of salt
Belarus	4018628	**....**	8593	13784	1790563	1633997
Estonia	2166053	**3861093**	79591	740686	1156085	59928
Russia	**16134990**	**....**	54654	**...**	659858	**....**
Lithuania	5757675	33722	**301082**	1206473	**2564277**	460307
Finland	11935160	**....**	**....**	**...**	**...**	**....**
Germany	**....**	155046	**....**	81105	**...**	**1774734**
Denmark	0	421194	**....**	**...**	**...**	1155410
Norway	6212	….	**....**	8593056	3960	…

Source: authors' estimations based on the Eurostat data

development of the overall economic situation in Latvia and globally. The export and import structure of mineral products of Latvia has changed comparatively little during this period as regards the groups of both goods and countries. Latvia has established stable relationship with other Baltic States in the export and import of mineral products. Latvia also exports its mineral products to Russia and Belarus, since the activity on these markets has intensified in particular following the accession of Latvia to the EU. Still, it has to be noted that the potential of mineral resources of Latvia is not fully utilised either for the satisfaction of domestic needs or for export. Only a small part of the mineral resources available in Latvia is currently involved in the economic operations, there is a lot of not surveyed and unidentified resources in Latvia. Therefore, at present, Latvia imports numerous mineral products, although it could replace the import and fully satisfy the domestic demand for construction materials (cement, gravel, clay etc.) by using its own resources. Too little attention has been focused on gaining market shares on new export markets; export partners of Latvia have changed very little during the past 10 years. As the consumption of mineral resources grows, also the burden upon the environment increases; thus, in order to maintain the balance between the development of the national economy and the environment, the problems that are related with the extraction of mineral resources, for example, the recultivation of mines and the handling of construction waste, should be solved by providing additional funding for this purpose.

Conclusions, proposals, recommendations

1. Following the regaining of the independence, the external trade has had an important role in the national economy of Latvia; export of goods and services had amounted to 40-45% of the GDP and import to 55-65% of the GDP during this period. Export has played a decisive role in the recovery process of the national economy of Latvia following the global financial crisis. In 2010, the contribution of the export in the GDP change amounted to 5.4% and it was 6.6% in 2011.
2. The export structure of Latvia has not changed considerable during the period from 2000 to 2012, the transition from the manufacturing of resources and labour consuming products to the manufacturing of human capital intensive goods has not taken place. Wood and its products dominate in the export of products of Latvia; during the period of January-September 2012, these products accounted for 16.1% of the total export, followed by iron and steel (9.4% of the total export) and mineral products (9.3% of the total export).
3. The EU countries present the major partners of Latvia in external trade and more than 70% of the import and export transactions of Latvia refer to these countries at present.
4. The importance of mineral products in the external trade of Latvia has increased considerably since 2000 and currently it is the third most important group of goods within export and the first most important within import; however, the export of mineral products is considerably lagging behind the import due to the different structures of export and import.
5. The structure of import and export of mineral products of Latvia has changed comparatively little across different product groups. Three products dominated in the export in the product group of non-metallic mineral products in 2012: cement, gypsum, and salt; as regards the import the dominating products were gravel, pebbles, salt, and cement.
6. The demand for cement as well as gypsum rock and gypsum has been quite fluctuating on the external markets during the period from 2000 to 2011. The export of cement increased rapidly in 2007 and 2008, then it sharply decreased in 2009 due to the economic crisis and increased quite rapidly again in 2010 and 2011.
7. The export of gypsum rock and gypsum experienced a moderate growth up to 2008, then it decreased and did not regain the pre-crisis level until 2011. Similar trends can be seen also in the import of products.
8. Russia, Baltics and the Scandinavian states are important Latvian trade partners. Russia is the biggest export market for the Latvian cement followed by Finland. Estonia is the main partner of Latvia as regard the import of cement. Gravel and pebbles are mostly exported to Lithuania, while Norway is the main import partner, followed by Lithuania, Sweden, and Estonia. Lithuania and Estonia present also the main sales markets for gypsum rock and gypsum from Latvia.
9. The potential of mineral resources of Latvia is not fully utilised either for the satisfaction of domestic needs or for export. Only a small part of the mineral resources available in Latvia is involved in the economic operations, there is a lot of not surveyed and unidentified resources in Latvia. Numerous mineral products are imported, although Latvia could replace the import and fully satisfy the domestic demand for construction materials (cement, gravel, clay etc.) by using its own resources; also too little attention has been focused on gaining market shares on new export markets; export partners of Latvia have changed very little during the past 10 years.

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MINERAL RESOURCES AND LONG TERM DEVELOPMENT IN LATVIA

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Abstract. The availability of mineral resources and their utilisation for covering both the domestic and external demand are among the indices that influence the development of the national economy. Although the range and amount of mineral resources available in Latvia is low in comparison with other countries, they play an important role in the development of the construction, agriculture, and other industries. The aim of this research is to analyse the role of mineral resources in the national economy of Latvia and their impact upon the long-term development of the national economy. In order to achieve this aim, it is necessary to analyse the programme documents of the long-term development of Latvia within the context of the EU long-term economic policy goals.
Key words: mineral resources, economic development, low-carbon economy, investments.
JEL code: O44, O50, Q31

Introduction

The effective use of resources is among the priorities of the European long-term development strategy: to achieve sustainable growth, by promoting a more resource efficient, greener, and more competitive economy (Europe 2020). Also, the development perspective of the national economy of Latvia is related with a lower emission amount, the effective use of energy resources in the industry of extraction and processing of mineral deposits (energy consumption and lower greenhouse gas emissions from extraction and processing). The development of recycling will be important in long-term, and it could impact the volume of extraction of certain mineral deposits to some extent.

The aim of the research is to analyse the role of mineral resources in the national economy of Latvia and their impact upon the long-term development of the national economy.

The tasks of the research were set in order to achieve the aim: 1) to identify the importance of mineral resources for the long-term development of the European Union; and 2) to study the strategic documents of the long-term development of Latvia and to identify the future role and development opportunities of the extraction industry and the industries producing mineral products.

The research was performed in 2012 and the following **research methods** were used in the paper: comparative analysis and synthesis, monographic, logically constructive, and statistical. The main research sources included programme documents, statistical data, publications on the natural resources as well as information from the Internet resources.

Research results and discussion

1. Inventory of mineral resources

Soil and the sedimentary rocks beneath it are non-renewable natural resources providing the ecosystem and satisfying the needs of the human life processes, including the resources of underground potable water, the base for food production and constructing of the engineering production, household, and communications infrastructure. Land and its depths are subject to both natural processes, i.e. tectonic fluctuations, current geological processes, and human activities. The resources of the land depths contain the deposits, rocks and minerals that can be used for the needs of the national economy, both now and in future, liquid usable substances found in rocks, the warmth of the land, and geological structures that can be used for economic activities.

The estimated volume of the global extraction industry has experienced considerable growth during the past 30 years. The volume of extraction of both fossil fuel and ores has increased; however, the volume of extraction of mineral resources for the needs of construction and industry has changed more considerably (Figure 1).

In 2008, China, the USA, and Russian Federation were the global leaders in extraction of fossil fuel. Moreover, the index of China had almost quadrupled in 2008 vs. 1980. The global leaders of ore extraction were China, Peru, and Australia. China, the USA, and India take the leading positions in the industry of extraction of Industrial and construction minerals (Global Material Flows).

The subterranean depths of Latvia are rich in the resources of various mineral materials that can be used for the production of construction materials: the resources of sand and sand-gravel, dolomite, clay, limestone, gypsum rock, peat, and sapropel are widely available. It should be noted that as regards the extraction of industrial and construction minerals, Latvia occupies mere 0.02% on the global map. Also in Lithuania and Estonia, the proportion of the extraction of minerals for further use in the national economy is similar (Global Material Flows). Per capita extraction of industrial and construction minerals (used materials) in Latvia is below the level of our neighbouring country Estonia and similar to that of Lithuania and Belarus. In

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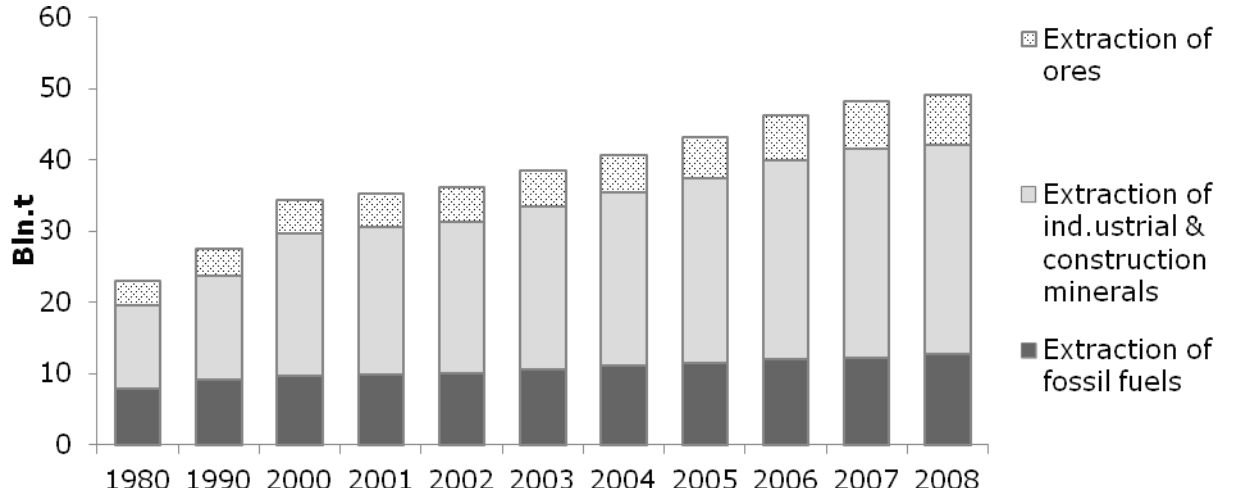


Note: Used materials - the amount of extracted resources, which enters the economic system for further processing or direct consumption

Source: Global Material Flows

Fig. 1. **Global resource extraction of minerals (used materials)**

2008, the average volume of extraction of industrial and construction minerals amounted to 5.1 tons per capita in Latvia and Lithuania, it was 9.2 t/capita in Estonia and it was 5.3 t/capita in Belarus.

The evaluation of the overall situation in Latvia reveals that the quantitative loads that are related with the extraction of mineral resources and peat are not considerable. It is possible to estimate the length of mineral resource reserves by evaluating the current extraction volume of the provision of the most important mineral resources in Latvia. In compliance with the estimation of the Strategic Environmental Impact Assessment for the Strategy of the Sustainable Development of Latvia until 2030: the reserves of gypsum rock will last for 50 years, sand for 100 years, sand-gravel mix for 200 years; dolomite for 210 years, clay for 1130 years, and limestone for 1310 years (Strategiskais ietekmes uz vidi novertejums Latvijas ilgtspejigas attistibas strategijai līdz 2030.gadam), and in compliance with the Environmental Report of the Strategic Environmental Impact Assessment, the reserves of dolomite, gypsum rock, sand and gravel will be sufficient for 2000 years, clay for 6000 years, limestone for 11 thousand years, and the reserves of peat will be sufficient for more than thousand years (Ietekmes uz vidi strategiska novertejuma). It can be concluded that the overall provision of raw materials for construction materials in this country is good. The survey and use of new deposits of sand and sand-gravel can be forecasted at places where large-scale construction works are planned, thus, reducing transportation costs.

Gypsum rock is among the most valuable land resources; Latvia provides this resource to all the Baltic States. Dolomite, in turn, is a widely spread mineral resource and presents a major source of mechanically resistant stone materials in Latvia. Thirty the most important deposits of gypsum rock, limestone, dolomite, clay, quartz sand, gravel, sand, stone, and sapropel are included in the list of mineral deposits of national importance.

The extraction of mineral resources is closely related with the economic activities and environmental impact caused by being not just a production waste. However, the extraction of mineral resources and peat, in particular at the time when the use of deposits is started, causes local negative environmental impact, for example, by destroying natural habitats, degrading the landscape, causing fluctuations of the underground water level and deterioration of its quality as well as pollution of above the ground water. Some of these impacts are short-term and reversible according to the expert evaluation, for example, in relation to the use of new deposits of mineral resources and the construction of settling basins (Vides parskats. *Nacionalajam attistibas planam 2007.- 2013.).*

The promotion of sustainable management of the land resources is an issue of shared responsibility between the Ministry of Agriculture as the supervisor of the land used for agriculture and forestry, the Ministry of Regional Development and Municipalities as the institution coordinating the planning of territories and the Ministry of Environment as the responsible institution for the prevention of pollution, erosions and risk processes. In addition, municipalities and land owners play an important role. There are no legally binding documents in the area of the land policy or soil protection in the EU; however, the Ministry of Regional Development and Municipalities is working on a package of regulatory enactments on the Land policy. The quality standards on soil and land have been developed and are applied in Latvia, the same refers to the regulations on the use of sludge for the improvement of agricultural land and the programme of nitrates.

2. Long-term development policy and resource taxes influencing extraction sector

Generally, the issues of the extraction and use of mineral resources and their environmental impact are touched upon in several policy planning documents and legal enactments in Latvia:

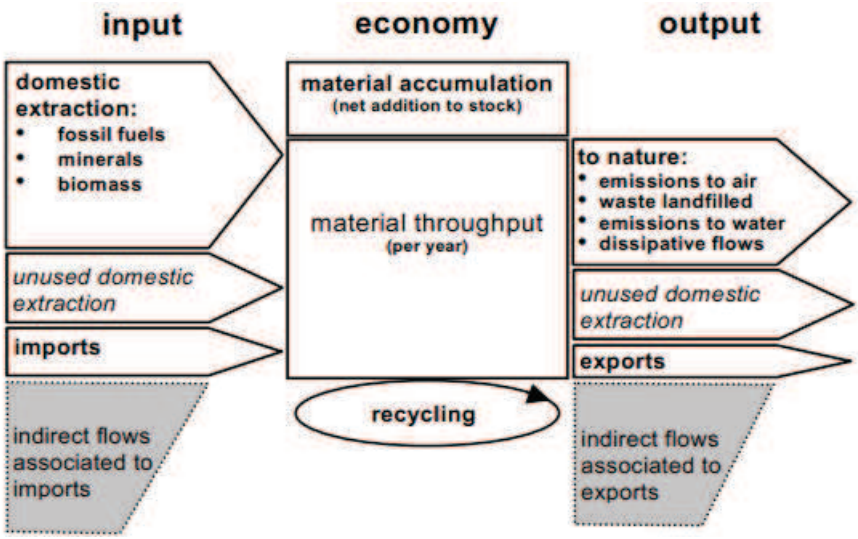
Table 1

Reserves of mineral deposits and extraction volume in Latvia

Mineral deposit	Units	Reserves as on 1 January 2012	Extraction in 2010	Extraction in 2011
Gypsum rock	thou. m^3	A - 3 721.65 N - 2 160.37	80.23	98.16
Limestone	thou. m^3	A - 60 239.57 N - 200 345.38	570.31	629.18
Dolomite	thou. m^3	A - 102 517.17 N - 498 157.00	1375.82	1593.27
Clay	thou. m^3	A - 50 211.46 N - 54 333.81	221.01	271.86
Quartz sand	thou. m^3	A - 787.69 N - 658.00	1.62	14.89
Sand-gravel	thou. m^3	A - 189 126.92 N - 219 672.53	2746.34	2764.9
Sand	thou. m^3	A - 144 122.37 N - 36 736.84	2820.18	3557.71
Sandy loam and loam	thou. m^3	A - 337.47 N - 148.90	82.64	92.36
Peat	thou. t with 40% humidity	A - 134 262.60 N - 46 065.45	703.81	946.95
Sapropel	thou. t with 60% humidity	A - 233.29 N - 0.00	0.13	0.2
Curative mud	thou. t with 90% humidity	A - 682.08 N - 129.54	1.73	0.46

Note: Surveyed (Category A), estimated (Category N) resources

Sources: Derigo izraktenu (buvmaterialu izejvielu, kudras un dziedniecibas dunu) krajumu bilance par 2011. gadu, 2012



Source: Economy-wide Material Flow Accounts and Derived Indicators. A Methodological Guide

Fig. 1. **Economy-wide material balance scheme (excluding air and water flows)**

— National Development Plan 2007-2013;
— National Development Plan 2014-2020;
— Sustainable Development Strategy of Latvia up to 2030 (Latvia 2030);
— National Strategic Framework Document 2007–2013;
— Guidelines of the Sustainable Development of Latvia;
— Land Policy Guidelines 2008 – 2017;
— National Plan of Waste Management 2006-2012;
— Environment Monitoring Programme Guidelines 2009-2012;

— Law on Environment Protection (adopted on 2 November 2006);
— Law on Evaluation of Environmental Impact (adopted on 14 October 1998);
— Law on Natural Resources Tax (adopted on 15 December 2005);
— Law on Waste Management (adopted on 4 December 2000);
— Law on Subterranean Depths (adopted on 2 May 1996);
— Law on Territory Planning (adopted on 22 May 2002);
— Regional Development Law (adopted on 21 March 2002);
— Cabinet Regulations No. 175 "Regulations on the National Environment Indicators" (approved on 24 February 2009).
— Cabinet Regulations No. 470 "Procedure of Managing the Waste of the Extraction of Mineral Deposits" (approved on 21.06.2011).

The Strategy of Sustainable Development of Latvia up to 2030 and the National Development Plan 2014-2020 are the long-term development documents of the highest national level according to the hierarchy. According to these documents, the primary goal has been defined as "the increase of the productivity of the human, economic, social and nature capital, including the place and space, in response to the challenges posed by global trends", where two areas out of nine are closely related with natural resources: 1) "Renewable and safe energy" with the following goal: to maintain the leading position in the EU in the area of the use of renewable energy resources and comprehensive development of the "green energy" potential; 2) "Nature as the capital for future" with the following goal: to take the leading position on the EU level in the area of preserving, increasing, and sustainable use of the nature capital (Vides politikas pamatnostadnes 2009. – 2015. gadam (2009)). The forecast on the development of the situation during the time period until 2030 (Zero scenario) has been developed by describing the driving forces, the existing environment quality, and the expected trends of the changes of environmental resources and their quality during the time period until the year 2030.

In compliance with the EU long-term development strategy, the direct role of mineral deposits is not emphasised within the long-term growth; however, it is among the issues of the industrial policy. According to the long-term development strategy of Latvia until 2030, the growth of the demand for construction materials is forecasted, thus, the domestic manufacturers of construction materials will have opportunities to use domestic raw materials and mineral deposits more widely. Moreover, the mineral deposits have been included within the spaces of national interest, which are described as territories and areas with outstanding value and importance for the sustainable national development. It can be expected that the extraction of the raw materials required for the construction industry, i.e. sand, sand-gravel, gypsum rock, and dolomite and their use for the production of construction materials will continue during the period until 2014. As regards the volume of extraction, the sector is balanced and the forecasted extraction volumes do not present any threat to the reserves of mineral deposits. Growth is not expected in the extraction of resources like quartz sand and sapropel. Along with resuming the application of lime to agricultural lands, the increase of the volume of extraction of limestone is possible. The volume of the extraction of peat could increase in relation with the increase of the export volume; however, no considerable increase of the extent of the use of peat in Latvia can be expected in the future.

The assessment of the national nature capital should be focused on the physical and moral stock-taking of natural resources and ecosystems services as well as the estimation of monetary gains and losses. The long-term trends of the use of mineral resources are viewed within the context of *the transition to the development model of low carbon emission economy in Latvia in comparison with other EU countries.*

The extraction of mineral resources and their use in the national economy is impacted by the taxation policy (affecting the costs and the price of the final product). The application of economic means for the implementation of the environmental policy is gaining an increasing role both on the global scale and in Latvia. The importance of this role is increased also by the growing manufacturing and consumption as well as the increase of the costs of the prevention of pollution. The application of economic means is aimed at the promotion of more efficient use of natural resources and at achieving the decrease of pollution. Environmental taxes are among the economic means, which are often used on the international scale. The effectiveness of the taxation of the extraction of natural resources, and their use and importance are emphasised also in the report by the European Environment Agency on the effectiveness of environmental taxes and fees as regards the extraction of sand, clay and other natural resources, and their management in certain EU countries (*EEA Report/No 2/2008 (2008)).* Table 2 presents the natural resources tax rate and its changes in Latvia compared with Estonia and Lithuania.

According to the data presented in Table 2, the natural resources tax rate applicable to several minerals used in the construction: sand, gypsum rock, limestone, dolomite, etc. has increased during the studied period in Latvia from 2009 to 2012. The natural resources tax rates for natural resources in Latvia, Lithuania, and Estonia are different due to different resources; moreover, they are not comparable in all the cases because the quality and the composition of particular resources differ. It should be noted that, in Estonia, several different tax rates are applicable to the same resource depending on the purpose of the use of the resource.

The equalisation and levelling of tax rates in comparison to Lithuania and Estonia as regards the extraction of all the above resources is not possible because the tax rates in all the three countries are not based upon the same principles and criteria (the accessibility of resources, the surveyed reserves and volumes, the effectiveness of the use of resources, the purpose of use etc.).

For the purpose of extraction of natural resources and the use thereof, it is necessary to receive the permit of extraction of natural resources or the licence for the use of natural resources. In compliance with the Law "On Subterranean Depths", the licence for the use of

Table 2

Natural resources tax rate in Latvia, Lithuania, Estonia, in Lats

Type of resources	Unit	Latvia				Lithuania	Estonia	
		Till 31.12. 2009	From 01.01. 2010	From 01.01. 2011.	From 01.01. 2012.	From 01.01. 2010.	From 01.01. 2011.	From 01.01. 2012.
Dolomite	m^3	0.06 - 0.25	0.09 - 0.25	0.12 – 0.25	0.15 – 0.25	0.27	0.53 – 1.93	0.53 – 2.02
Sand-gravel	m^3	0.10	0.15	0.20	0.25	0.12	0.40 – 1.19	0.40 – 1.31
Sand	m^3	0.01 – 0.05	0.04 -0.08	0.07 - 0.12	0.10 - 0.15	0.10 – 0.82	0.19 – 0.95	0.20 – 1.04
Limestone	m^3	0.10	0.13	0.16	0.20	0.35	0.58 – 1.50	0.58 – 1.65
Clay	m^3	0.10	0.10	0.12	0.15	0.16 – 0.40	0.37 – 0.69	0.39 – 0.72
Peat	tonne	0.13	0.20	0.25	0.30	0.13	0.81 – 0.98	0.81 – 0.98
Sapropel	m^3	0.10 – 0.50	0.10 – 0.50	0.10 - 0.50	0.10 - 0.50	0.17	-	-
Amber	kg	-	-	-	-	7.12	-	-

LTL 1 = LVL 0.2040; EUR 1 = LVL 0.7028

Source: authors' construction based on Dabas resursu nodokla likums, Mokescio uz valstybinius gamtos isteklius istatymas, Informativais zinojums "Par dabas resursu nodokla piemerosanas praksi dabas resursu ieguvei Latvija salidzinajuma ar Igauniju un Lietuvu un izvertejumu un priekslikumiem par valsts ienakumiem ilgtermina saistiba ar dabas resursu izmantosanu"

natural resources of the extraction of frequently found natural resources is issued and the land owned by the state or a municipality is leased or transferred under possession for the purpose of the extraction of natural resources, or the use of beneficial features of the natural resources for a time period up to 25 years. The user of the subterranean depths may engage into gradual extraction of natural resources over the whole period, however, taking into account the market situation, all the resources in the particular spot in compliance with the permitted volume may be extracted in the beginning of the validity of the licence or at the end of this period. This means that the tax payments will be received into the central budget or the special municipal budgets for the environment protection only after the extraction of the relevant resources.

In addition to the above, it should be noted that in Latvia the subterranean depths and all the natural resources contained therein are fully owned by the land owner. Currently in Latvia, no additional special fee is applied to the lease or privatisation of the state or municipal land for the purpose of the extraction of natural resources in relation to the lease of the land for this particular purpose; this is different from many other countries, including Lithuania. The value of subterranean depths is not included in the cadastral value of the property (Informativais zinojums "Par dabas resursu ...., 8 November 2011).

Regulations on the National Environmental Indicators (24 February 2009) define the indicators for the evaluation of the effectiveness of the implementation of environmental and sustainable development policy and the compliance of the environmental situation to the policy goals. The environmental policy is split in the following five groups: air, water, land, nature, and climate. Pursuant to the Environmental Policy Guidelines 2009-2015, the evaluation has been performed based upon the above-referred indicators. It should be noted that none of these indicators relates with the extraction of mineral resources.

The following are identified as issues that have to be solved by a definite government policy in the field of the land resources, protection of the land deposits, and soil providing for the following: 1) in Latvia, geological risks or the land degradation is manifested on the regional level only, the increasing erosion of the sea coast, the erosion activities of certain rivers (for example, several sections of the Gauja), landslides (Turaida, the Gauja valley, the Abava valley over the section Sabile - Kandava), and coastal processes are not sufficiently taken into account within the territory planning; 2) the methodologies of the extraction, accounting, control, and recultivation of mineral deposits in the field of use of the land deposits have to be improved in the future. It is noted that the recovery of the places of extraction of mineral deposits is insufficient. A certain part of pits that were established during the Soviet Union period are currently abandoned and the recultivation has not been done there (e.g. Riteru quarry at Koknese county) (Vides politikas pamatnostadnes 2009. – 2015.gadam (2009)).

Summarising the information obtained in the research, it can be concluded that sustainable development planning documents of mineral resources in the economy are not discussed in detail.

The analysis on the development of extraction and processing industry products following the accession to the EU leads to a conclusion that the external trade of ready products has increased. Moreover, the expansion of the domestic construction works allowed to increase the volume of the extraction of mineral resources. The long-term importance of mineral resources in the development of the national economy will not decrease. This is attested by the increasing volume of the external trade of end products and the development perspective of the construction industry.

Conclusions, proposals, recommendations

1. Global resource extraction is increasing over long term: the extraction of industrial and construction minerals has increased from 12 to 30 bln tonnes during the period of 1980-2008.
2. As regards the extraction of industrial and construction minerals, Latvia accounts for just 0.02% on the global map.
3. The long-term strategies of the EU and Latvia do not directly focus on the importance of mineral deposits; however, they contain indications as to their important role in the overall development.
4. The industries of the extraction and processing of mineral resources in Latvia, like other industries of the national economy, will be impacted by the EU long-term defined direction towards the model of low emissions and effective use of resources.
5. Latvia should evaluate the ownership of subterranean depths, whether these are owned by the landowner or by the state, because Latvia is the only EU Member State where subterranean depths and all the natural resources found there are fully owned by the landowner.
6. The importance of mineral resources in Latvia will increase within the long-term development perspective: both the extraction of the domestic resources and the import thereof will increase to satisfy the domestic demand. The use of mineral resources in manufacturing will also affect the increase of end products.

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POLYCENTRIC DEVELOPMENT PROJECTS INITIALISATION PROCESS PROBLEMS IN LATVIA

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Abstract. If adequate project plans are developed, then an important standard for monitoring, evaluating, and controlling the application of project resources is available. The review of the project during its life cycle is greatly impaired if the project plans are inadequate. On the changing economic scene, the available funding for polycentric development projects is one of the tools aimed at the growth of the new European Union Member States. In the planning period of 2007–2013, Latvia has EUR 4.5 billion available for the implementation of various projects.
The aim of this article is to study the polycentric development infrastructure and construction project initialisation, and problem definition processes through the analysis of their compliance with the project management models.
The performed study revealed that projects implemented by municipalities were not always developed and implemented in line with the project management process models; there were many deviations during the implementation and modifications were necessary due to insufficient quality project submittals. Upon qualitative analysis of the methods applied in project proposals elaboration process, the authors provide a new model appropriate for project management, which can be used through project problem – goal definition process.
Keywords: project problem definition, project initialisation.
JEL code: O22

Introduction

The basis for any investment efficiency and usefulness is the application of appropriate project management methods and principles. The authors of this article analysed the experience and issues of Latvian municipalities in the development and introduction of the projects under the Action programme "Infrastructure and Services", Supplement 3.6., Priority "Polycentric Development", Event 3.6.1. "Support for Sustainable Urban and Urban Region Development", Activity 3.6.1.1. "Encouraging National and Regional Scale Development Centre Growth for Balanced State Development". The polycentric development framework ensures EUR 253,035,284 available for infrastructure and construction projects, of which EUR 234,336,206 were disbursed on contracts by 1 March 2012. There are EUR 18,699,078 remaining for public infrastructure and construction projects. The authors analysed municipal project initialisation process and its compliance with the generally accepted project management models. At the same time, cost-benefit analyses and risk analyses for municipality-developed projects were made in the research. The current development model of Latvia can be classified as monocentric; whereas, progress towards a polycentric development model is hampered by insufficient growth of development centres. Poorly developed public services and lack of interest of entrepreneurs as potential investors, and of people as potential residents represent the main impediments for the development of the above centres.

Polycentric development priority goal is to ensure the growth of specific national and regional development centres (urban), providing support for projects in urban competitiveness, development of accessibility and attractiveness in the frame of municipalities integrated in the local development programmes. The programme beneficiaries are Daugavpils, Jelgava, Jekabpils, Liepaja, Rezekne, Valmiera, Ventspils, Aizkraukle, Cesis, Gulbene, Kuldiga, Livani, Madona, Saldus, Smiltene, and Talsi. The minimum available financing for a project is defined as EUR 1 300 000, the maximum available financing is the whole quota defined by the Cabinet regulations. The quota has been set based on statistical data about demographical situation and socio-economic indicators.

The aim of this article is to study the polycentric development infrastructure and construction project initialisation, and problem definition processes through the analysis of their compliance with the project management models.

The authors define the following tasks to achieve the research aim:

1) to contemplate theoretical aspects of project initialisation and definition phase;
2) to analyse polycentric development project problems and scope definition process;
3) to provide a project problem – goal definition model based on literature analysis and practical research.

Theoretical aspects of project problem and scope definition

Projects are tools for attaining unique achievements – which are certainly necessary for dealing with global crises – and the project management approach has proven useful in dealing with complex crises (Cleland J., 2006; Kerzner H., 2009; Vrecko J., 2007). The multi-project environment is a fact of the present time and development, while the developed model is strongly

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Source: A Guide to the Project Management Body of Knowledge, 2008

Fig. 1. **Project definition process**

designed on the project base and it is project oriented.

The analysis of scientific literature in the field of project management reveal that very a little role has been paid to project initiation and the problem definition importance in the frame of project management. The study shows a very broad analysis and presents methods and tools for project planning and problem solutions. The British PRINCE2 project management standard requires that, in some situations, a feasibility study might be required to investigate the situation and determine options for the way ahead. Using PRINCE2, the optimum approach would be to handle the study as a separate and distinct project and then operate a second project to implement the results of the study.

The American national project management standard PMBOK defines project scope planning as "the process of developing a written scope statement as the basis for future project decisions including, in particular, the criteria used to determine if the project or phase has been completed successfully" (PMBOK, 2008).

Problem analysis identifies the existing situation and establishes the *'cause and effect' relationships* between the problems that exist. It involves three steps:

1) precise definition of the framework and subject of analysis;
2) identification of the major problems and dangers faced by target groups;
3) visualisation of the situation.

Typical investment projects include construction of new buildings, hospitals, roads, power plants, water reservoirs, and other infrastructure items; replacement of old facilities; renovation of existing facilities; acquisition of new facilities; or purchase of equipment. Investment projects normally are large, non-recurring expenditures, which involve multi-year funding, have a useful life greater than five years, are based on a comprehensive needs assessment, meet an essential public purpose, and require public accountability for funds. An investment project always has direct implications for future operating budgets. The recurring costs of investment projects on completion will have to be clearly understood and estimated by Public Bodies before embarking on the decision to go ahead with the projects. Investment projects may be funded from the government-owned resources, grants, or loans from foreign institutions and/ or by the private sector.

According to A.Walton, project planning may be considered a form of information development and communications. As the project team develops the project plan, the project team should learn more about the project goals, strategies, and team member roles. The project objectives then can be decided in terms of cost, schedule, and technical performance. Satisfaction of project goals is accomplished through the completion of the project work packages. The project strategy is a plan of action with accompanying policies, procedures, and resource allocation schemes, providing general direction of how the organisational effort will be used to accomplish project goals and project objectives. Simultaneous project planning is the process of having the project team consider all aspects, issues, and resources required for the project plan on a concurrent basis. Concurrent planning means that everything that can or might impact the project is reviewed during the planning phase to ensure that an explicit decision is made concerning the role that all resources, however modest, might have on the project (Walton A., 1996).

The Project should be defined in the initialisation phase, and the definition should show that the project is conducted in a logical and proper manner (Charvat J., 2002).

Project problems are ordinarily complex, consisting of many aspects that require analysis and insight (Heerkens R., 2007). One needs to invest an appropriate amount of time to fully understand all aspects of the problem. Very often, what appears to be the problem is actually masking a bigger, more fundamental problem. Uncovering that fundamental problem is referred to as *identifying the true need*.

Meanwhile, problem solving is an intellectual process, which is the concluding part of the larger problem process that includes problem finding and problem shaping where problem is defined as a state of desire for the reaching of a definite goal from a present condition that either is not directly moving toward the goal, is far from it, or needs more complex logic for finding a missing description of conditions or steps toward the goal (Altshuller G., 1973).

The problem with most organisations is that setting strategic targets can occur quickly, while developing implementation plans and executing them are much slower processes (Kertzner H., 2009).

Latvia is characterised by a monocentric distribution of the population – there is one powerful centre, Riga, and a wide and evenly distributed network of towns. For a long time, such a distribution of population was regarded as an obstacle for regional development; however, it has a significant growth potential that can be developed by implementing the concept of polycentric development. In the existing network of towns, in addition to the development of one major centre - Riga, the development of which is essential to ensure the national competitiveness of the international scale, other centres have to be purposefully developed until they become strong enough to facilitate regional growth. The most important development problems of the development of cities/ towns are outworn public infrastructure, including public transport, business, cultural etc. infrastructure as well as lack of public services and low administrative capacity.

The situation, in terms of regional development, is difficult to identify and measure. It is true that certain tendencies in the EU Member States are very evident: regional disparities still exist; there is a core – periphery pattern in almost all states and between states; and there is growing inequality between the "learning economy" regions and the areas where declining sectors and structural unemployment prevail. Nevertheless, detailed and objective analysis is not easy due to varying positions regarding data interpretation and methodological constraints. The variety of regional (economic, social, and physical) development indicators employed by the Member States is impressive. Still, the uniform approach adopted by the EU relies heavily on only two measures, namely, GDP per capita (indicating economic cohesion) and unemployment rate (reflecting social cohesion). Therefore, regional policy measures are designed and implemented in an environment of inadequate baseline information and decisions are often arbitrary. This problem might be particularly acute in the new Member States where indicators on the sub-national level are often missing entirely or are unreliable.

In general terms, Latvia has favourable preconditions for balanced and sustainable development, e.g. even geographical distribution of urban areas in the territory of the country, a pre-requisite for the development of a polycentric state, high-quality and sparsely populated environment, satisfactory conditions of local natural resources, and optimum distribution of transport infrastructure. At the same time, the further growth of economy and sustainable territorial development are impeded due to deteriorating infrastructure, inability to meet quality requirements set by the economic growth, and low quality and availability of public services. The NSRF strategy is aimed at reducing the risks posed by infrastructure and public service gaps that threaten the rapid future growth of the economy and have a negative impact on the quality of life of communities in different areas of the country.

Governments in some jurisdictions provide guidance on how to appraise proposals using cost-benefit analysis, before committing significant funds. For example, the governments of Australia, New Zealand, the United Kingdom, and the United States provide guidance on the issues and techniques that should be considered when assessing new regulatory, revenue or capital policies, programmes, and projects. Such guidance advises public sector departments and authorities on how to undertake conventional analysis; however, such guidance can offer advice on a broader economic cost-benefit analysis that can be more valuable to the public interest.

P.Drucker commences by stating that an effective decision making process shall go through some basic steps. These steps will not "make" the decision – it will always be a judgement call – but if the steps are ignored, the decision is not likely to be effective nor right. The six steps he recommends are as follows.

1. The classification of the problem.
2. The definition of the problem.
3. The specifications which the solution to the problem must satisfy (the "boundary conditions").
4. The decision as to what is "right" rather than what is acceptable, in order to meet the boundary conditions.
5. The building into the decision of the action to carry it out.
6. The feedback which tests the validity of the decision against the actual course of events (P.Drucker, 2007).

The methodological basis for the article is made up of the guidelines of the EU and the Republic of Latvia as well as studies of foreign authors, and research carried out by the authors. The listing of literature provides references to papers of foreign authors, and sources of publicly available information.

Project problem definition and its modelling

The essence of planning is the opportunity to see the threats and remove them or to use them in decision-making process. Project planning defines the project management team's responsibility, the allocation of costs, the division of labour, and the level of control (Starling G., 1993).

Justification of a problem situation should make sure it describes a controversy, not just lists a number of various facts. A typical mistake is to indicate in the project submission the desired situation, not describing the existing. In such a case, the problem justifying the need for the project is not demonstrated. Therefore, the problem results from the problem situation; whereas, a problem situation is one that encourages formulating and solving the problem. If a problem situation is not analysed in sufficient detail, the solution can be incomplete, too. To justify the necessity for the project, it is best to start by describing the issue in question or the problem topicality. Municipalities are forced in their work to solve problem situations involving various target groups.

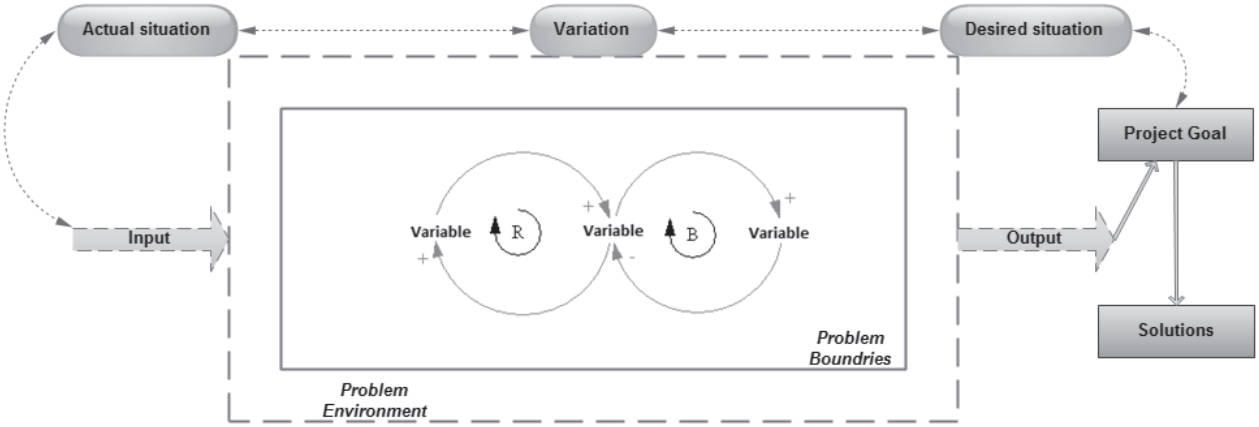
Definitely, the most important thing in the project development process is the topicality of the problem and its accurate definition. The project goal is determined when performing the justified problem analysis. Next, the definition of project problems, target groups, and goals is analysed in the project submissions of particular municipalities.

Analysis of the initiation documentation of the selected 74 projects reveals the main mistakes in the problem situation description:

1) project topicality is not described – no justification of the significance, importance of the problem for the specific city, in the particular period of time;
2) some fragments mention the region or state in general, others the municipality;
3) terms are not understood;
4) generally-known statements are used, not sustained by facts.

Problem analysis methods are rarely used in the development of municipality projects. After the summarisation of all the problems and target group needs mentioned in the problem situation, each problem should include planned actions to match it (several problems could be solved by one action, and one problem could have several actions planned for its solution). Conclusions describe the influence of the planned actions on the target group needs (Pulmanis E., Bruna S., 2011).

The lack of a structured approach for decision-making, project approval, and project execution is part



Source: authors' construction based on the qualitative analysis

Fig. 2. **Problem definition model**

of that problem. All this can be satisfied with a sound project management methodology. To describe the role of problem definition and importance in project management, the authors have elaborated a system dynamic oriented model for problem definition. System dynamics is a methodology and mathematical modelling technique for framing, understanding, and discussing complex issues and problems. Originally developed in the 1950s to help corporate managers improve their understanding of industrial processes, system dynamics is currently being used throughout the public and private sector for policy analysis and design.

Problem solving models attempt to capture important aspects of the problem solving process. As decision-making and problem solving are intimately related, it is not surprising then that the Simon model of the decision-making process is the foundation for a number of problem solving models (Brightman, 1978; Van Gundy, 1988; Sprague, 1982).

Problem definition involves both textual and graphical statements of problematic behaviour. Conceptualisation entails identifying feedback loops that are hypothesised to underlie observed patterns of system behaviour. Model formulation is the process of moving from a theory of underlying structure to a fully specified mathematical model so that the theory can be tested. In this assignment, the skills involved in problem definition and model conceptualisation are treated separately. Later assignments will bring these skills together with those of formulation and analysis to focus on a variety of strategic and operational problems. The attributes chosen differentiate a scenario assignment from an action assignment. The constraints for value assignments prevent action assignments from overriding scenario assignments. In short, a scenario assigns values to attributes (variables) that the action component must treat as uncontrollable variables. These value assignments reflect an intuitive assessment of the assumptions that the problem model will work under. By identifying some attribute assignments as scenarios, problem solvers gain greater flexibility in testing the robustness of their problem solving actions under a range of different assumptions.

Step 1. Start with a problem – characterise it in simple terms such that it would be clear to all who have even peripheral understanding of it. What is wrong? What is the root source of the problem?

Step 2. Begin defining the causes of the problem. One should start with a fact in the loop. State it in sentences such that there is a relationship between cause and effect.

Step 3. Each cause becomes an effect of the next. To find a cause, one needs to answer the question Why?. To find out the effect, one needs to discover what happens. It is a probing process of Why's. Directional relation of the loops goes from Cause to Effect.

Step 4. Show the relation between Cause to Effect as reinforcing (+) or negative (-). This does not indicate good or bad, it just means as the cause goes intensifies, effects does too (+) and as cause diminishes, effect does also (-). A negative or balancing loop (-) is referred to as a "**goal seeking**" loop. There is a mechanism in this loop that is trying to maintain some level of stability.

In every project decision process, one should pay full attention to processes inside the model to get the best results and find appropriate problem solution. The authors provided model shows input, process, and outputs for defining project problem. If there is an adequate problem description, one can set up appropriate goals and solutions to be achieved in the frame of project. Such a model can be used in project management practice and academic disciplines as well as conducting the necessary analysis and ensuring the quality of information flows. It can be used to support the appraisal of the public investment. Project managers in the public sector can play a central part in:

— recognising the investment opportunity and subsequent assessment of the strategic impact and economic rationale of a potential investment;
— determining the alternatives (many organisations require consideration of at least three alternative investment options in making decisions of any materiality);
— ensuring that information is used in a way that leads to the selection of the best alternative;

— aligning decisions with assessments of subsequent managerial performance, for example, management incentives based on accounting profit could encourage actions that do not support sustainable value generation to shareholders and other stakeholders. A potentially good project (based on the NPV criteria), supported by a wider assessment of its strategic importance, could result in poor accounting returns in its early years. Managing sustainability issues could also help prevent future costs or to avoid limitation or constraints to the organisation's strategy; and
— subsequent checking to establish the implementation of anticipated benefits.

Conclusions

In the public and not-for-profit sectors, delivering sustainable value involves ensuring that public funds are spent in the most effective and efficient way and consistent with long-term objectives, and that services provide the desired benefits to the society.

Organisations should place investment appraisal in a wider strategic context in terms of how an investment supports the achievement of strategic objectives, goals and targets, and responds to opportunity and/or risk. A wider strategic analysis might include an assessment of (a) state and region economics; (b) economic profitability across markets, products, and customers; (c) determinants of sustainable demands and competitive position; and (d) alternative options.

Professional project managers in public administration play a crucial role in promoting and explaining the key principles of project and investment appraisal in their organisations, both to encourage long-term decision-making and to manage uncertainty and complexity. Two key challenges can arise that require their professional judgment.

— confusion often occurs in understanding a technique's theoretical basis and practical application. Professional project managers in organisations might find themselves needing to advise on where the connections between the application of financial principles and related project management theory are not easily understood or applicable in a current context, such as when economies are in a period of instability;
— evaluating projects and investments is inherently complex and involves many subjective factors that can affect the outcome of a decision-making process, and ultimately the viability of an organisation. Professional project manager in an organisation can help provide a strategic and operational context, and to estimate the many variables, such as if forecasted cash flows and the cost of debt and equity are being used to fund any project.

In summary of the study results, the authors define the planning phase as the most important project management process, since adequate planning process is a factor for successful project introduction. It is the use of inappropriate project management planning methods in municipalities that creates problems in the project implementation and introduction phase, the results of which follow from low-quality technical projects, procurement documents, and incompletely developed risk analysis and cost-benefit analysis.

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TOWARDS MULTI-DIMENSIONAL REGIONAL CLUSTER IDENTIFICATION

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Abstract. Regional clusters are important driver force of the regional economy; thus, there is no consensus on single definition and regional cluster phenomena and, moreover, on methods identifying regional clusters. From the literature review standpoint, the authors discuss dimensions of regional clusters and suggest using cluster definition based on five dimensions that include enterprises working in the same industry, enterprises from complementary industries, government institutions, and other institutions that are all in the given geographical area. After defining regional clusters, the authors turn to the main problem of the issue - identification of regional clusters. The authors review and test two methods of regional cluster identification (shift-share analysis and location quotients) and come to a conclusion that statistical methods only identify two dimensions of regional clusters - enterprises working in the same industry in the certain geographical area. It is not possible to find correlation between the outcomes of both methods. Therefore, the authors develop a scheme to identify all of the cluster dimensions using different methods. For further research, the authors suggest using the developed scheme to identify regional clusters.
Key words: regional cluster dimensions, cluster identification methods
JEL code: O01; R11; L14

Introduction

First discussed by Marshall in the 1920s (2009) as industrial districts, clusters appeared in modern economic literature with the studies of Porter (1990, 1998a, 1998b, 1998c, 2000) who defined cluster as "a geographically proximate group of interconnected companies and associated institutions in a specific field based on commonalities and complementarities". This definition leaves a lot of space for discussion, especially when it comes to searching and identifying regional clusters based on statistical data. The terms like *commonalities* and *complementarities* are not easy to identify, because they are too wide. For this reason, some researchers offer regional cluster definitions based on narrow indexes that are easy to identify with statistical methods. For example, Arthur (1990) and Sorenson, and Audia (2000) defined clusters as companies that produce the same product. The problem with the narrow definitions is that it becomes very hard to distinguish specific characteristics of regional clusters from other forms of industry location and cooperation. Companies that produce the same product can be linked with formal links (cooperatives), be geographically concentrated (agglomerations), be supported by government to locate in specific economic zone (special economic zones) and they can lso show signs of collaboration between other industries and institutions, or can have no signs of collaboration at all. Therefore, the authors found an increasing need of regional cluster definition that would show characteristics of regional cluster. After proposing and definition based on five dimensions, the authors faced another problem - lack of methods to identify all the dimensions. The **aim of the research** is to propose multi-dimensional regional cluster identification. Three research tasks are set up to reach the aim:

1) to summarise theoretical aspects of regional clusters and to suggest definition of regional clusters based on five dimensions;
2) to identify and test methods of regional cluster identification;
3) to set up framework of regional cluster identification method that covers all dimensions of regional cluster.

The **research methods** for the first section include monographic descriptive, analysis and synthesis methods. In the first section, the authors propose definition of regional clusters based on five dimensions and discuss the differences between regional clusters and other forms of enterprise cooperation and collaboration with each other or institutions in a particular geographical area. The following section describes regional cluster identification methods based on monographic descriptive, analysis and synthesis methods, and statistically tests two of the identification methods - shift-share analysis and location quotients. The authors also search for correlation between the outcomes of these two methods. In the last section, the authors suggest framework to identify all the dimensions of regional clusters, suggesting using a wide range of qualitative and quantitative methods. The authors suggest using the proposed framework for further research to identify regional clusters in Latvia.

1. Theoretical and conceptual aspects of regional clusters

Regional cluster can be defined using different measures. For some researchers, regional clusters are type of cooperation (Knorringa, Mayer-Stamer, 1998),

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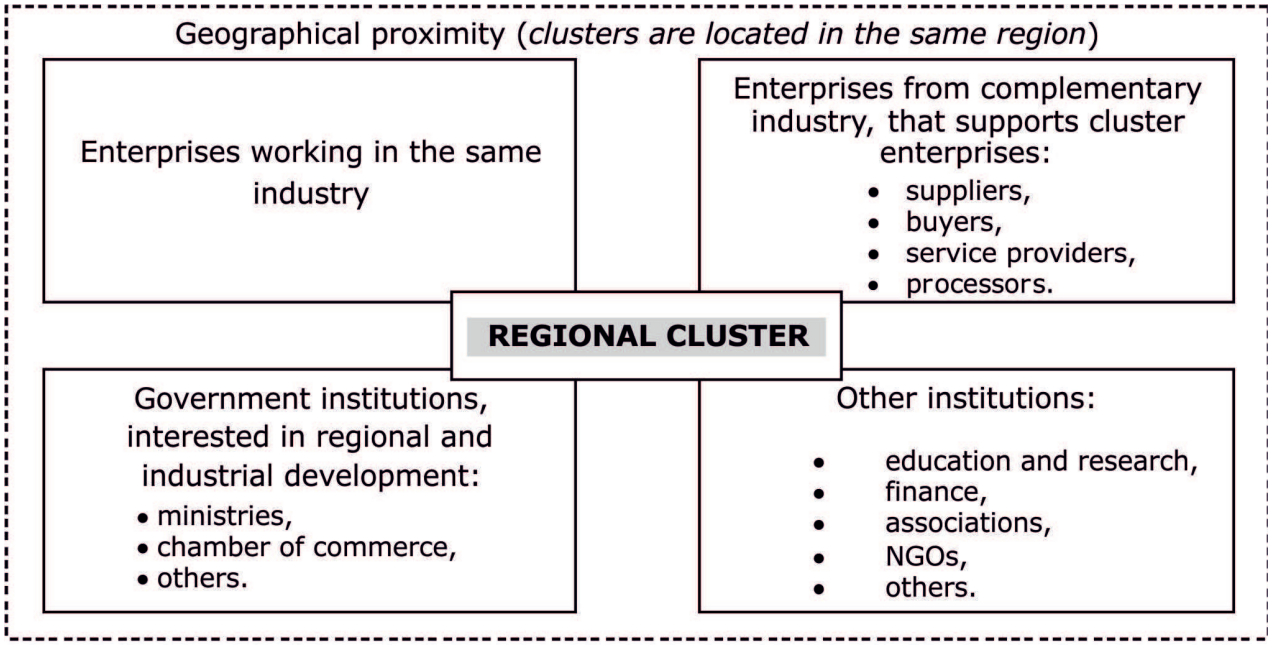


Source: authors' construction

Fig. 1. **Regional cluster dimensions**

vertical and horizontal form of network (Pachura, 2010; Cook, 2010), companies that produce the same product (Arthur, 1990; Sorenson & Audia, 2000) and share common vision and support infrastructure (Cooke, Huggins, 2003) in geographical proximity (Saxenian, 1994). In the previous research (Garanti, 2013), the author suggested defining regional clusters based on five cluster dimensions as it is shown in Figure 1.

The main dimension of any type of cluster is enterprises working in the same industry. Marshall (2009) in the early 1890s built his industrial district theory based on companies from the same industry. Cluster theory nowadays suggests that companies from the same industry cooperate and compete, and complement each other (Porter, 1998a, 1998b, 1998c, 2000). Companies can be related with buying and selling relations, or cooperate in innovation and development process of new product or service, or jointly work to attract skilled workforce (Cortright, Mayer, 2001; Barkley, Henry, 1997). In the regional cluster companies from complementary industries and supportive institutions play an important role in creating formal and informal relations between enterprises, government institutions, non-governmental organisations, finance, education, research, and other institutions (Porter, 1998a, 1998b, 1998c, 2000; Saxenian, 1994; Shakya, 2009; Rocha, 2004; Rocha & Sternberg, 2005). All the previously mentioned factors and dimensions are located in geographical proximity, forming the most important dimension of regional cluster (Porter, 2000; Delgado, 2010, 2012).

Based on previously described regional cluster dimensions (Figure 1), the authors have developed definition for regional cluster: **regional cluster is informal form of cooperation and interaction between companies in the same industry, involving related and complementary businesses, scientific, education and government, and other related institutions in the same region**.

Not all the five dimensions will be always present in the cluster. Aspects influencing the presence of cluster dimensions are cluster life cycle (Abernathy, Utterback, 1978; Andersson et al., 2004; Williams, 2005; Kamarulzaman, 2011), cluster typology (Edena, Molt, 2002; Reinau, Dalum, 2008; Markusen, 1996), and others.

Since the beginning of regional cluster theory in the early 1990s, economic researchers have not come to single definition of regional cluster initiatives. Moreover, related literature has introduced several definitions and concepts, which describe the spatial distribution of enterprises, collaboration with other firms or scientific institutions and links between industry and supportive institutions. It leads to a number of related concepts with common features, like agglomerations, industrial districts, cooperatives and others. Based on literature studies, the authors show the differences of the cluster concept from other forms of firms' cooperation and collaboration.

— **Industrial districts** and clusters are used as synonyms in several studies (Reinau, Dalum, 2008; Belussi, 2004; Maskell, 2001; Asheim, Isaksen, 2002; Cooke, Huggins, 2002). Marshallian Industrial districts (Marshall, 2009) as well as industrial districts in Italy (Becattini, 1979, 1989) are geographical concentration of small and medium size enterprises in a particular area. Each enterprise is specialised in the production stage. In contrast, cluster concept is wider and more flexible (Belussi, 2004). Scientific studies recognise industrial districts as one of the cluster types (Markusen, 1996; Paniccia, 2006; Altenburg, Mayer- Stamer, 1999; Mayer- Stamer, Harmes- Lidtke, 2005).

— **Agglomeration,** also defined as spatial concentration of enterprises, workforce and resources (Marshall, 2009; Chatterjee, 2003), is the main precondition of regional cluster development (Gordon, McCann, 2000; Chatterjee, 2003; Xiangan, Yingchuan, 2005; Boja, 2011). Cluster is agglomeration where enterprises and institutions are linked, and support and supplement each other (Porter, 1998; Krugman, 1991a; Palacios, 2005). From the literature studies, the authors concluded that all the regional clusters are agglomerations of enterprises and institutions but not all the agglomerations are clusters.
— **Special economic zones (SEZ)** are strategic "top to bottom" approaches where the government offers tax, other discounts and infrastructure for the enterprises that are willing to work in the special economic zone (Aggarwal, 2006). In comparison, clusters are natural "bottom to top" formations where initiative comes from cluster members (Zeng, 2011; Murphy et al., 2009). Although, some authors (Zeng, 2011; Bhatt, Puri, Appolloni, 2012) argue that it is possible to form clusters in the special economic zones, if the environment is favourable for that. The authors discuss that both - special economic zones and clusters - are geographic concentrations of economic activities but in case of SEZ the government support plays an important role, because the main aim is to establish enterprises in economically weaker regions.
— **Supply chains and networks** are strategic organisation of supplies, production, and distribution (Han, 2009; Kemppainen, Vepsalainen, 2003). Supply chains and networks do not put emphasis on the geographical and regional dimension but work nationally or globally (Han, 2009). Cluster of small and medium size enterprises and supply chain or network can have similar functions, while theoreticians (Murphy et al., 2009) emphasise that besides supply chain and network, cluster also has supportive enterprises and institutions.
— **Science and technology park** is business support and technology transfer initiative (Squicciarini, 2008) formed to encourage and support start-ups, incubation process, knowledge, and innovation based business development. It supports businesses with environment and infrastructure to develop close interaction with education and science institutions to gain mutual benefits (Ferguson, Olofsson, 2004). Idea of science and technology parks is based on the Triple Helix (university-industry-government) interaction (Etzkowitz, Leydesdorff, 1995). Study by the European Commission (Saublens, 2008) shows that science and technology parks provide special conditions for the development of partnerships between science and business, thus, contributing to the development of the cluster. However, science and technology parks are not "a must" precondition for cluster creation or growth. The authors conclude that science and technology parks and clusters are interested in knowledge and technology transfer but it is only one aspect of cluster growth and development. Cluster is a wider term than science and technology parks.
— **Cooperatives** as well as clusters are based on voluntary action and cooperation that is mutually beneficial (Porter, 1998a, 1998b, 2000; Rocha, 2004; Szanyi, 2012). The main difference between cluster and cooperative is the type of agreements. According to the legislation in the Republic of Latvia (Kooperativo sabiedribu likums, 1998), work of cooperative is based on legal agreements and cooperative is a legal entity, while cluster is not defined as legal entity and it works with both formal and informal agreements between enterprises.

As the authors discussed the differences between clusters and other forms of companies cooperation and collaboration, it is clear that cluster is a new way of organising cooperation and collaboration between enterprises, government institutions, and other institutions in a particular geographical area.

2. Regional cluster identification methods

The main problem after defining regional cluster is to identify regional clusters. The authors found several methods used for regional cluster identification - shift-share analysis, location quotients, Ellison and Glaeser's agglomeration index, Maurel-Sédillot index, and Devereux, Griffith, Simpson index. The authors discuss and test two of the methods - shift-share analysis and location quotients.

Shift-share analysis is used to identify industries in the region that is growing faster than average in the country, showing competitiveness of industries in the region (Aya-ay, Prantilla, 2007). The analysis was found in the 1960s by L.D. Ashby (1964) and V.R. Fuchs (1962). Nowadays, shift-share analysis is used in economic literature to identify regional clusters (Altena, Heijman, 2007; Heijman, van der Heide, 1998; Acs, Ndikumwami, 1998; Zaccomer, Mason, 2011). Shift-share is a descriptive analysis that helps identify fast growing industries in the region, yet, the analysis is not giving any explanation how a region has gained advantage in the particular industry (Hoppes, 1997; Stevens, Moore, 1980). Shift-share analysis is using employment data and dividing employment growth into three components:

— national share (NS) - explains how much of the regional industry's growth is explained by the overall growth of the national economy: if the nation's entire economy is growing, it is expected to have positive industry growth in the region;
— structural component/ industry mix (IM) - represents the share of the regional industry growth explained by the growth of the specific industry on the national level;
— regional shift (RS) - explains how much of the change in a particular industry is due to some unique competitive advantage that the region possesses.

Location quotient (LQ) shows regional specialisation that is an important factor in cluster establishment and growth phase (Audretsch, Feldman, 2004). The LQ method is widely used to identify regional clusters (Guimaraes, Woodward, 2009). Porter's cluster mapping project (Cluster Mapping Project, 2003; Porter, 2000), the EU cluster mapping project (Cluster Mapping, 2008) and researchers (Szanyi, 2012; Szanyi et al., 2010; Lazzeretti, Boix, Capone, 2009) have used the LQ

Table 1

Industries with the highest regional share in Zemgale region, Latvia between 2005 and 2011

Industry	NACE code	NS	IM	RS
Manufacture of fabricated metal products, except machinery and equipment	C25	-78	-105	756
Manufacture of wood and products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	C16	-405	-546	720
Retail trade, except of motor vehicles and motorcycles	G47	-1002	-722	660
Residential care activities	Q87	-158	152	618
Wholesale trade, except of motor vehicles and motorcycles	G46	-195	-141	550
Manufacture of fabricated metal products, except machinery and equipment	C25	-78	-105	756

Source: authors' calculations based on Equations 1,2,3

method to identify regional clusters. The method's main advantage is its relatively simple application and calculation using employment data; however, some researchers criticise the method because it is static and do not look at the trends over the years (Szanyi, 2012; Szanyi et al., 2010). To overcome this problem, some researchers (Primont, Domazlicky, 2008) suggest using LQ together with shift-share and dynamic analysis. If LQ<1 - employment intensity in the region is lower than the national average; if LQ=1- employment intensity in the region is equal to the national average; if LQ>1 - employment intensity in the region is higher than the national average (region is specialised in the particular industry).

The authors used Ashby (1964) methodology to calculate NS (Equation 1), IS (Equation 2) and RS (Equation 3) and methodology developed by Porter and Harvard Business School for the US Cluster Mapping Project (Cluster Mapping Project, 2003) to calculate Location Quotient (LQ) (Equation 4).

$$NS_{j;k} = NOD_{j;k;t} \times \left(\frac{NOD_{v;t}}{NOD_{v;t-1}} - 1\right) \quad (1)$$

$$IS_{j;k} = NOD_{j;k;t} \times \left(\left(\frac{NOD_{v,k,t}}{NOD_{v;k,t-1}} - 1\right) - \left(\frac{NOD_{v;t}}{NOD_{v;t-1}} - 1\right)\right) \quad (2)$$

$$RS_{j;k} = NOD_{j;k;t} \times \left(\left(\frac{NOD_{j,k,t}}{NOD_{j;k,t-1}} - 1\right) - \left(\frac{NOD_{v,k,t}}{NOD_{v;k,t-1}} - 1\right)\right) \quad (3)$$

$$LQ_{j;k} = \frac{NOD_{j;k} / NOD_{j}}{NOD_{v;k} / NOD_{v}}, \quad (4)$$

where:

NOD – number of employees;
v – country;
j – region;
k – industry;
t – reporting year (year 2011);
t-1 – base year (year 2005).

The authors test these two methods in Zemgale region of Latvia using statistical data from the years 2005 and 2011 (Employment Data, 2012). Results of shift-share analysis are summarised in Table 1 and location quotients in Table 2.

Results of shift-share analysis in Zemgale region show that manufacture of fabricated metal products (except machinery and equipment) has experienced the highest regional growth (RS), while the national average growth (NS) and industry growth (IM) was negative between 2005 and 2011. Also, manufacture of wood and products of wood and cork (C16), retail trade (G47), residential care activities (Q87), wholesale trade (G46), and manufacture of fabricated metal products (C25) are the industries with high regional growth, thus, showing potential competitive industries where regional clusters could be established.

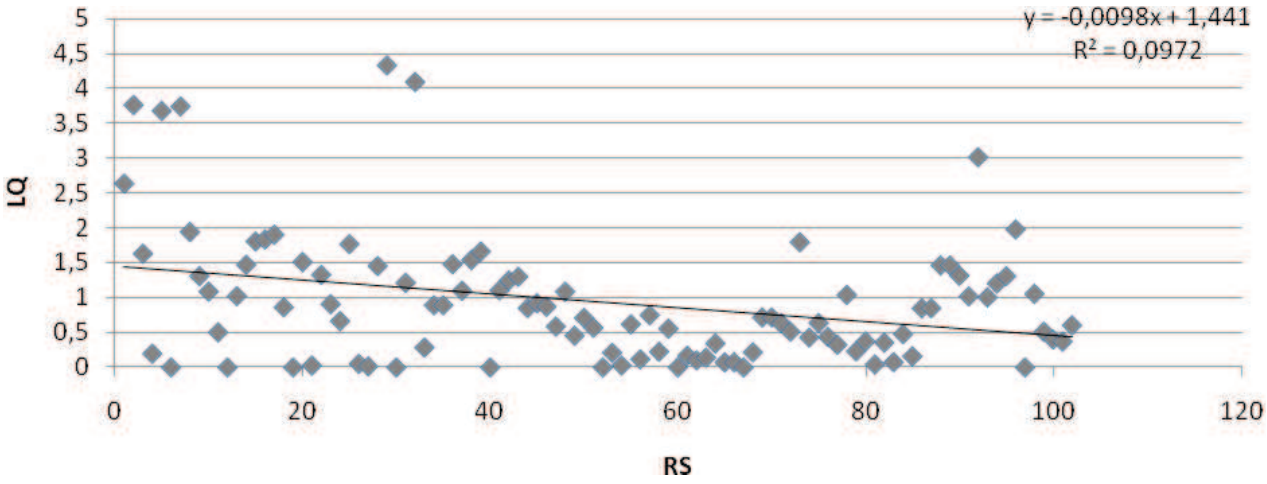
Results of location quotient analysis in Zemgale region show that in 2011, the region was highly specialised in manufacture of motor vehicles (in 2011, it had 4.35 times more employees in the industry in Zemgale than the national

Table 2

Industries with the highest location quotient in Zemgale region, Latvia between 2005 and 2011

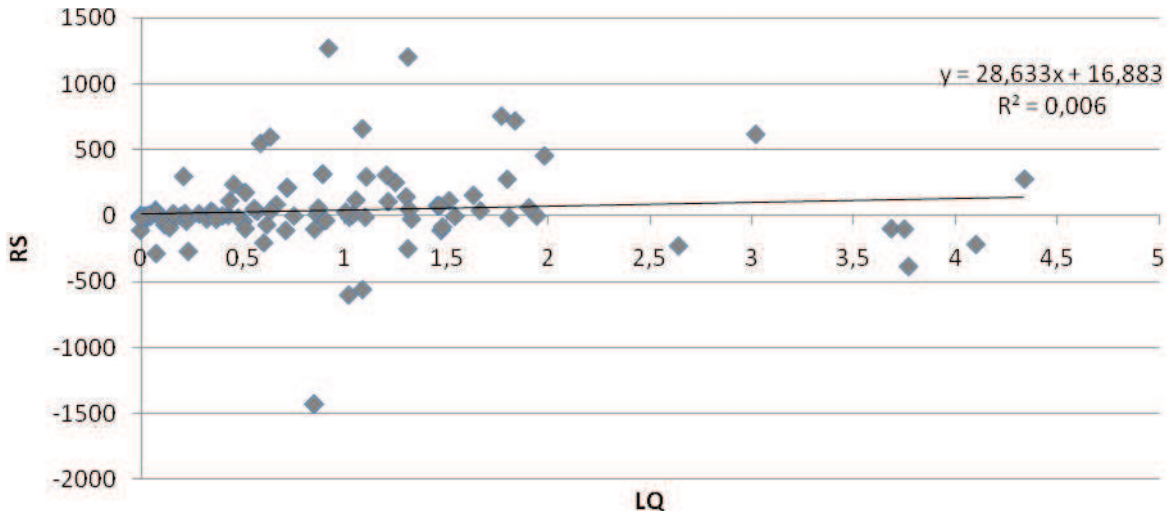
Industry	NACE code	LQ_{2005}	LQ_{2011}	Changes
Manufacture of motor vehicles, trailers and semi-trailers	C29	3.26	4.34	1.08
Other manufacturing	C32	5.53	4.10	-1.44
Crop and animal production, hunting and related service activities	A01	3.91	3.77	-0.15
Other mining and quarrying	B08	4.25	3.75	-0.50
Residential care activities	Q87	1.89	3.02	1.13

Source: authors' calculations based on Equation 4



Source: authors' construction

Fig. 2. **Correlation between RS and LQ in Zemgale region**



Source: authors' construction

Fig. 3. **Correlation between LQ and RS in Zemgale region**

average) and its specialisation has increased by 1 point since 2005. Analysis also shows other industries that are located in Zemgale region, like other manufacturing, crop and animal production, and others.

In a perfect situation, industries experiencing high regional growth (RS) are also highly specialised in the region (LQ>1) - that would indicate the presence of regional clusters. In Zemgale region, the authors

Step 1: ***Identify competitive enterprises specialised in the particular industry and located in the particular region*** — Shift-share analysis — Location quotient — Ellison and Glaeser's agglomeration index — Maurel-Sédillot index — Devereux, Griffith, Simpson index
Step 2: ***Map government institutions and other institutions around agglomerated industries*** Research needed for links between industry and institutions using qualitative research methods: — interviews, — questionnaires, — focus groups, — document analysis etc.
Step 3: ***Provide evidence of existing linkage between agglomerated industry and complementary industries*** — Input-output model — Qualitative research methods
Step 4: ***Complete the analysis*** Summarise statistical and research data to identify regional clusters

Source: authors' construction

Fig. 4. **Framework for complete regional cluster dimension identification**

could only identify one industry with high RS and LQ - residential care activities. Positive aspect is high LQ in manufacture of motor vehicles, trailers, and semi-trailers industry, where RS is also positive. Though, there are number of industries that show high specialisation and negative regional growth and vice versa. The authors analyse the correlation between data in Figure 1 and Figure 2.

It is obvious that there is no relationship between LQ and Shift-share analysis and vice versa. In other words, industries that are highly specialised in the particular region can have negative regional growth and industries having high regional growth are not necessary specialised in that region. Results show that using only two methods to identify regional cluster is not enough, because it is not possible to come to a single conclusion on industries dominating in the region and forming regional clusters. Therefore, the authors develop framework to indentify regional cluster and its dimensions in the next section.

3. Framework to identify regional clusters

The authors argue that all the methods using available statistical data are only identifying two cluster dimensions that are enterprises working in the same industry in the specific region. In Latvia and also in other countries, statistical information is limited to identify other cluster dimensions. Therefore, the authors suggest using the following framework (Figure 4) when identifying regional clusters.

In the framework, the authors develop four steps for the complete regional cluster dimension identification. The methods described and tested in Section 2 only refer to the first step. The first step can help obtain information on the industries where it could be possible to find regional clusters. Therefore, it helps to focus on a few fast growing industries that are concentrated in the particular region. For the following steps, it is complicated to have any statistical information, so the authors suggest using quantitative analysis. Step two requires to map government and other institutions around the industries identified before. Mapping is an easy task but in case of regional clusters, these institutions have to cooperate and collaborate with the industry. These links can be identified only with qualitative analysis. From wide range of possible qualitative analysis, the authors suggest using interviews, questionnaires, focus groups, and document analysis (Bryman, 2012), to identify links between industry and institutions. Interviews and questionnaires with management will give information on informal links, while document analysis will show formal links that are made between companies and institutions. Step tree requires detailed information and evidence on existing links between industry and complementary industries. Theoretical and practical studies (Hofe, Bhatta, 2007) use Input-output model to identify inter-industry linkages (Hirschman, 1958) that help recognise "key" industries with backward and forward linkages. Qualitative research (interviews, questionnaires, focus groups, document analysis) is another way to recognise linkages between potential cluster industry and other industries. Both methods have drawbacks, e.g. data availability for input-output method, and time and resource consumption in qualitative research. The final step of regional cluster analysis includes summary that shows potential or existing regional cluster based on previous analysis.

Conclusions, proposals, recommendations

Regional clusters are important driver force for regional, national, and even international economy; however, there is no consensus on definition of regional clusters. In this paper, the authors suggest using definition with five dimensions of regional clusters that includes enterprises working in the industry, enterprises from complementary industries, government, and other institutions in the particular geographical area. After proposing definition, the authors faced the main problem that was the presence of different regional cluster methods that identify only one or few dimensions of regional clusters. In this paper, the authors tested two methods to identify agglomerated industries - shift-share analysis and location quotients. The authors found that there was no correlation between the results of these two methods. Therefore, information that is more detailed is needed to identify regional clusters. For this reason, the authors propose framework to identify regional clusters that include four steps - identification of competitive agglomerated industries in a particular geographical area, mapping government and other institutions around agglomerated industries, providing evidence of inter-industry linkages and summarising the research, and showing existing or emerging regional clusters. The proposed framework covers all five cluster dimensions; thus, it is a step towards multi-dimensional regional cluster identification. In further studies, the authors will apply the suggested framework to identify regional clusters in Latvia.

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INNOVATIVE SOLUTIONS FOR RURAL AREAS: DEVELOPMENT OF SOCIAL CAPITAL

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Abstract. The paper presents results of studies devoted to clarifying the role of social capital, and its relation to innovations and development, particularly, in rural areas. The latest understandings on types and forms of social capital in the economic context are described in the paper. The research provides some consideration towards social capitals' measuring and evaluation. The development of cooperatives in rural areas has been evaluated as example of indicator or category of social capital. It is concluded that social capital can support innovation in several ways and the different dimensions of social capital might influence innovative activity. Moreover, the innovation is an important channel by which social capital improves well-being and economic growth. Analysing the development of cooperatives in rural areas or communities, the results, however, show that the number of cooperatives is nearly constant in the past few years, while the net turnover and members of cooperatives have significantly increased statistically. Some areas for further research are identified, e.g. to investigate the trends of development of other non-governmental institutions such as Rural Partnership associates, which operate on the local level.
Key words: social capital, innovation, cooperative, rural.
JEL code: J 24, L 31, O 15, O 31, P 25.

Introduction

Social capital is a rapidly expanding research theme within economics and more broadly across the social sciences; it has also become a popular concept with policy makers in both developed and developing countries (World Bank, 2011). Social capital is a topic of considerable interest to a wide range of people because of its links to individual and community well-being. It is a multidimensional concept and different elements of the framework may be appropriate for different purposes (OECD, 2001). Social capital relates with the resources available within communities in networks of mutual support, reciprocity, and trust (Davis, 2005). The social capital of a society includes the institutions, the relationships, the attitudes, and values that govern interactions among people and contribute to economic and social development (Grootaert C., van Bastelaer T., 2002). Social capital and increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable (World Bank, 2011). Social capital is a relatively new concept in economics (Pugno M., Verme P., 2012) and social capital research remains in its initial phases (Adam F., 2008), *inter alia,* in Latvia.

The **hypothesis** of the study is that social capital is fostering innovations and economic growth; and cooperatives as category or type of social capital have developed and play a crucial role in the development of rural areas (communities), *inter alia,* rural areas of Latvia.

The **aim** of the study or overview is to assess social capital and innovation relationship; to evaluate social capital and its categories (non-governmental institutions, particularly, cooperatives), and to assess the development of cooperatives in the rural areas (communities) of Latvia. The **tasks** of the study are: 1) to clarify the concept of social capital; 2) to investigate the social capital relationship with innovations and further sustainable development of rural communities; and 3) to evaluate some categories of social capital (non-governmental institutions, particularly, cooperatives) development in rural areas (communities) of Latvia. The principal materials used for the study are as follows: different sources of literature, research papers, and the reports of institutions. The suitable qualitative and quantitative research **methods** have been used for various solutions in the process of study: monographic, analysis and synthesis; logical and abstractive constructional; data grouping and comparing; correlation and regression analysis; expert and other methods.

Only the results of studies of non-governmental institutions' development in rural areas – the development of cooperatives movement - are presented in the paper due to the limited space.

Research results and discussion

1. Innovations and social capital

Social capital should ultimately be seen in the context of contribution it makes to sustainable development. Sustainable development has been defined as a process whereby future generations receive as much or more capital per capita as the current generation has available (UNESCO, 2010). Traditionally, this has included natural capital, physical or produced capital, and human capital as the wealth of nations on which economic development and growth are based (Grootaert C., Van Bastelaer T., 2002). It is now recognised that these three types of capital determine only partially the process of economic growth because they overlook the way in which the economic actors interact and organise themselves to generate growth and development, where the missing link is social capital (Ibid). Human capital includes the

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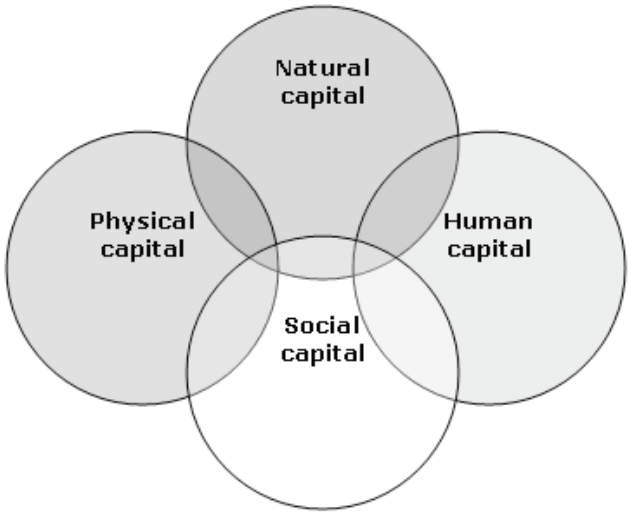


Source: author's construction based on Falk I., 2000; Grootaert C., Van Bastelaer T., 2002; Woolcock M., 2001

Fig. 1. **Forms of capital for well-being and economic growth**

skills and knowledge, which has been gathered in formal and informal learning, while the social capital has been built through interactions between people, facilitated the learning, and use of these skills and knowledge (Falk I., 2000). The relationship of all four forms of capital (natural, physical, human, and social) is presented in Figure 1. However, there is an opinion (Forum for the Future, 2011) that physical or produced capital will be divided into two different capitals: 1) manufactured capital and 2) financial capital.

A number of studies that focused on social capital and the overall well-being of societies support the arguments for the positive effect of social capital on innovation. Social capital, e.g. trust and cooperation between individuals, and between them and public institutions, can encourage innovation and the adoption of knowledge (Adler P.S., Kwon S.W., 2002; Miguelez E. et al., 2011). Moreover, Miguelez and co-authors (2011) argue that the social capital positively correlates with innovation. Higher levels of human capital enhance social capital, and social capital can support innovation in several ways, predominantly through its effect on trust, shared norms, and networking, which improve the efficiency and exchange of knowledge (OECD, 2011). Akcomak and Weel (2009) have argued that innovation is an important mechanism that transforms social capital into higher income levels; higher innovation performance is conducive to per capita income growth; and social capital affects this growth indirectly by fostering innovation. Moreover, the innovation is an important channel by which social capital improves income growth (Ibid) and the different dimensions of social capital might influence innovative activity in dissimilar ways (Kaasa A., 2009). Dakhli and De Clercq (2004) have argued that trust, both within organisations and in inter-organisational settings, may foster innovation.

Despite social capital not having a clear, undisputed meaning (Dolfsma W., Dannreuther C., 2003), social capital is a very old idea in sociology, and emerges naturally from a discipline that emphasises methodological collectivism and structure as opposed to the individualism and agency of economics (Gannon B., Roberts J., 2012). The economic approach to social capital is critically reviewed by Durlauf and Fafchamps (Gannon B., Roberts J., 2012) who identify three key ideas: 1) social capital generates positive externalities for members of a group; 2) these externalities are achieved through shared trust, norms and values; and 3) shared trust, norms and values arise from informal forms of organisations based on social networks. The aspect of social capital to which economists have paid most attention in the literature is its importance for the economic growth (Perez F. et al., 2006).

There are, thus, numerous definitions of social capital found in literature (Adler P.S., Kwon S., 2002), for example, "…social capital comes about through changes in the relations among persons that facilitate action" (Coleman J., 1988). Several scholars (e.g. Claridge T., 2004; Grootaert C., van Bastelaer T., 2001; 2002; Gannon B., Roberts J., 2012; Woolcock M., Narayan D., 2000; Woolcock M., 2001) argue that the definition of social capital includes not only the structure of networks and social relations but behavioural dispositions (such as trust, reciprocity, honesty) and institutional quality measures (rule of law, contract enforceability, civil liberties etc.), where the relations have been organised by way of conscious association, of self-organisation and organised communication (Narayan D., Cassidy M.F., 2001). The most common is the definition of social capital by the OECD, defined as "networks together with shared norms, values, and understandings that facilitate co-operation within or among groups" (Keeley B., 2007). Narayan and Cassidy (2001) identified four dimensions of social capital: informal social ties, formal social ties, trust, and norms of collective action. Moreover, World Bank (2011) stresses that social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Civil society is domain created by people

Table 1

Evaluation questions and impact indicators for the social capital

	Assessment criteria	Evaluation questions related with social capital	Suggested impact indicators
Social capital	Local identity and coherence strengthened (usually associated with bounding social capital)	To what extent have the RDP measures increased the interaction amongst actors to promote a sense of place and to strengthen community ties?	— Number of people participating in collective investments and composition of participants in projects of this type.
		To what extent have co-operation and networking increased the economic performance of the area?	— Relative number and volume of business/employment arising from cooperation and networking relationships.
	Networking and openness fostered (usually associated with bridging social capital)	To what extent have the RDP measures enhanced the actors' capacity to identify and take up new ideas, tacit skills etc. and turn them into innovation?	— Number of newly established external relationships to key stakeholders, defined as such stakeholders playing a dominant role in flows of knowledge; flows of finance; bestowing legitimacy.

Source: based on Grieve J., Weinspach U., 2010

through their associations, bonds and allegiances separate from the state and the market (Day P., 2010). These relation networks are formed for the sake of family, faith, interest and ideology by way of conscious association of self-organisation and organised communication (Ibid). There are two distinct types of social capital: 1) horizontal, reflecting ties among individuals or groups of equals or near-equals, and 2) vertical (also referred to as linking social capital), stemming from hierarchical or unequal relations due to differences in power or resource bases and status (Ben Cave Associates, 2007). Additional distinctions have been drawn within horizontal social capital, namely, bonding social capital (also called localised social capital) and bridging social capital. These types are very important and the author will look at them in more detail.

There is much debate over the various forms that social capital takes but one fairly straightforward approach (e.g. Day P., 2010; Keeley B., 2007; Woolcock M., Narayan D., 2000) divides it into three main categories:

Bonding social capital: links to people based on a sense of common identity (e.g. among family members or heterogeneous groups such as family, close friends and people who share our culture or ethnicity);

Bridging social capital: links that stretch beyond a shared sense of identity (e.g. across heterogeneous groups such as distant friends, colleagues and associates); and

Linking social capital: links to people or groups further up or lower down the social ladder (e.g. between groups/individuals with differing levels of power or social status).

The benefits in developing social capital are: cooperation between groups; reduction of the costs of conducting day-to day affairs and doing business; facilitating the spread of knowledge and innovation; and promoting cooperative and/or socially minded behaviour in situations where narrow self-interests alone do not generate good outcomes for society (Adler P.S., Kwon S., 2002). Increasing evidence shows that social cohesion - social capital - is critical for poverty alleviation and sustainable human and economic development (Dolfsma W., Dannreuther C., 2003), particularly, rural areas (Wiesinger G., 2007; Zhang C., Zhang N., 2008).

2. Categories of social capital in rural areas and its evaluation

Like human capital, social capital is difficult, if not impossible, to measure directly; for empirical purposes the use of proxy indicators is necessary. Years of education and years of work experience have a long tradition as proxies for human capital and have proven their value in numerous empirical studies (Grootaert C., Van Bastelaer T., 2002).

It is suggested (Grieve J., Weinspach U., 2010) on the European level that some indicators will be used to evaluate the impact of the Rural Development Programme (RDP) of the European Union on social capital's development (Table 1). Suggested impact indicators incorporate impact of cooperation activities and networking. Table 1 offers not only impact indicators but also the suggested evaluation questions.

There are three major methodological approaches to evaluate the social capital. The micro-approach emphasises the nature and forms of cooperative behaviour; the macro-approach focuses on the conditions (favourable or unfavourable) for cooperation; and the meso-approach highlights structures that enable cooperation to take place (Franke S., 2005). This approach defines social capital as the potential of these cooperative strategies (groups, associations etc.) to strengthen collective capacities, where social capital is seen as 1) the product of the actors' motivations for forming an association (the values and aspirations that underpin the co-operative relationship); 2) their behaviour (types of association that define how actors co-operate); and 3) their perception of collective issues (cultural beliefs and influences etc) (Ibid).

3. Cooperatives as social capital in rural areas

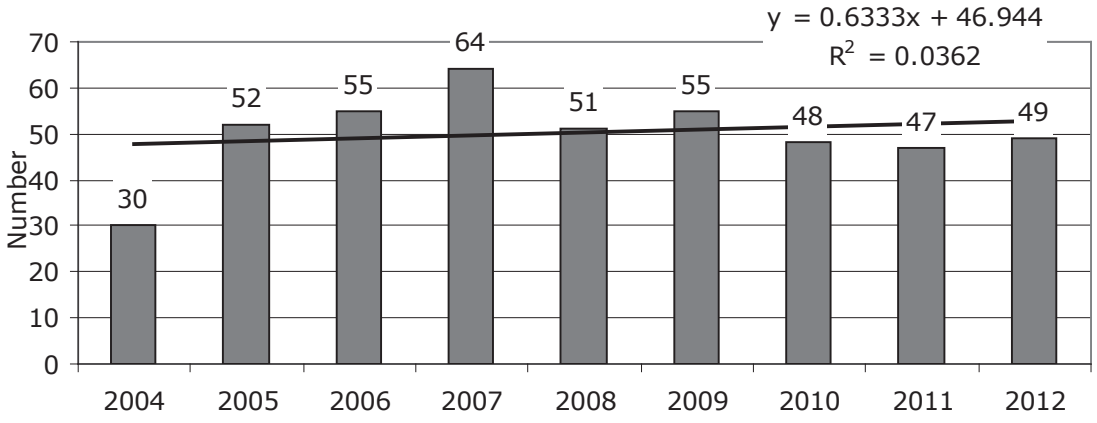
Measuring social capital may be difficult but it is not impossible, and several excellent studies have identified useful proxies for social capital, using different types and combinations of qualitative, comparative,

Table 2

Social capital acquisitions from the cooperative

	General social capital	Cooperative social capital
Structural dimension	— the number of non-member customers	— the number of associations or organisations, which the cooperative joins for business purposes; — the number of related cooperative associations or organisations, which the cooperative joins for business purposes; — the number of business partners, which the cooperative deals with for business purposes cognitive dimension.
Cognitive dimension	— customer loyalty or satisfaction	— reliability of the partners or organisations that are counted in the structural dimension
Collective actions		— the number of meetings with partners or organisations that are counted in the structural dimension; — the number of joint projects or alliance with others

Source: adapted from Hong G., Sporleder T.L., 2010



Source: author's construction based on Latvijas Lauksaimniecibas kooperativu asociacija, 2012

Fig. 2. **Numbers of agricultural cooperatives in Latvia, 2004-2012**

and quantitative research methodologies (Woolcock M., Narayan D., 2000; World Bank, 2011). One quantitative indicator of social capital development measuring is membership in non-governmental institutions; *inter alia,* cooperatives (Wiesinger G., 2007). Cooperative ownership of the business is a unique social capital-fostering characteristic (Allahdadi F., 2011; Majee W., Hoyt A., 2010). As members, they are motivated to work not only by themselves but also by the realisation of other benefits such as local employment opportunities, provision of needed services to local people, and ownership of the business (Majee W., Hoyt A., 2010). The internationally recognised definition of cooperatives is given by the International Co-operative Alliance (ICA): "An autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations, through a jointly owned and democratically controlled enterprise" (Birchall J., Ketilson L. H., 2009). Cooperatives are also guided by seven cooperative principles: voluntary and open membership; democratic member control; member economic participation; autonomy and independence; education, training, and information; cooperation among cooperatives; and concern for community (Ibid; Strashok C., Dale A., 2011). The acquisitions of social capital from the cooperatives' activities are of two types: 1) general social capital and 2) cooperative social capital (Table 2).

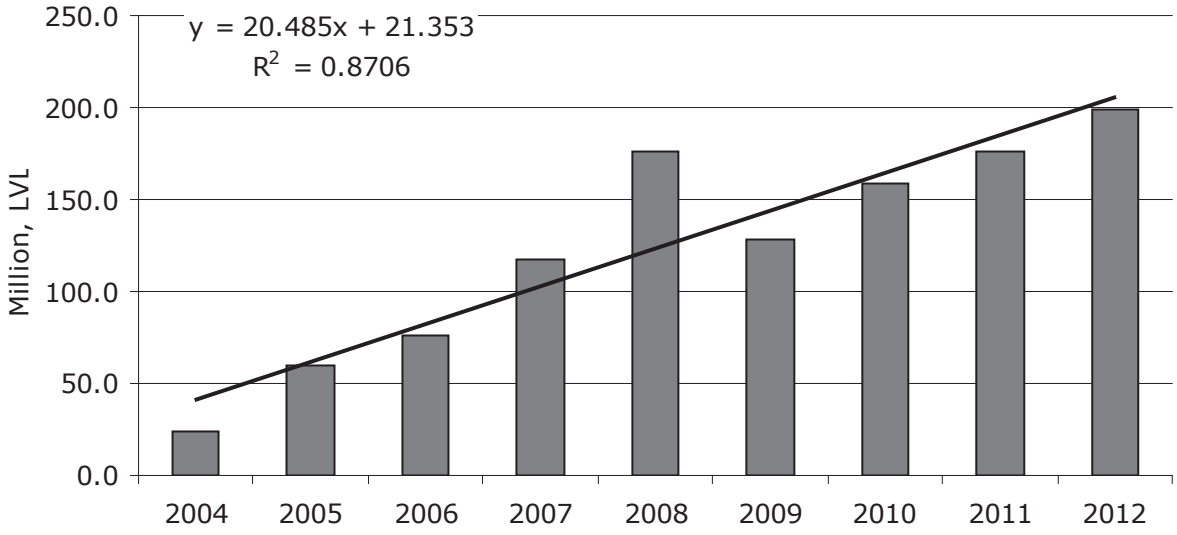
Analysing the development of cooperatives in the rural areas of Latvia, one can conclude that the number cooperatives has been nearly constant in the past few years, and the trend of number is constant (coefficient of correlation - $r = 0.19$, level of significance - $\alpha > 0.05$).

The net turnover of agricultural cooperatives has increased (Figure 3) statistically significant from 2004 to 2012, where $r = 0.93$; $\alpha < 0.01$; and reached above LVL 200 million in 2012.

The number of members (farmers) of agricultural cooperatives in Latvia has significantly increased (Figure 4) statistically ($r = 0.94$; $\alpha < 0.01$) and exceeded 9,200 members in 2012.

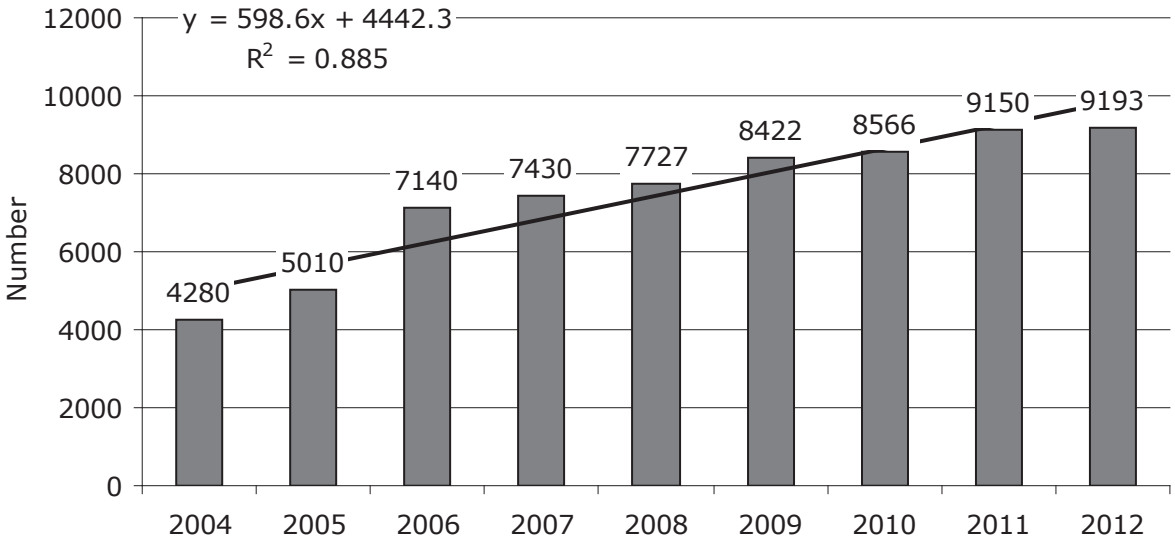
Cereals cooperatives are 39% of all cooperatives and they top the list by the number of agricultural cooperatives; milk cooperatives are in the second place with the share of 35%; and multipurpose cooperatives rank third with the share of 10% (Figure 5).

There are four fruit and vegetable cooperatives, and one of them (Latvijas Republikas Zemkopibas Ministrija, 2012) is an organic fruit and vegetable cooperative. Honey cooperatives have stopped operating in the past few



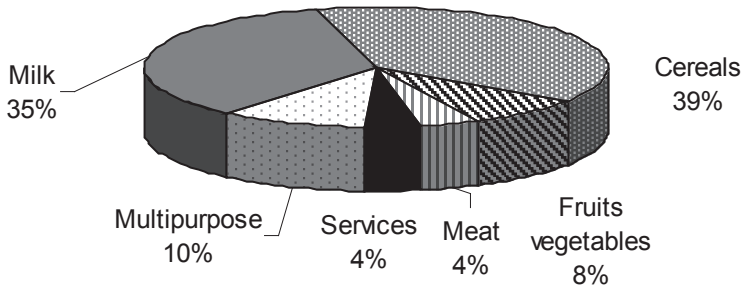
Source: author's construction based on Latvijas Lauksaimniecīias kooperativu asociacija, 2012

Fig. 3. **Net turnover of agricultural cooperatives in Latvia, 2004-2012**



Source: author's construction based on Latvijas Lauksaimniecibas kooperativu asociacija, 2012

Fig. 4. **Number of members of agricultural cooperatives in Latvia, 2004-2012**



Source: author's construction based on Latvijas Republikas Zemkopibas ministrija, 2012

Fig. 5. **The share of number of agricultural cooperatives by branches in Latvia, 2012**

years. Considering the increasing production of honey, it will be preferable to re-establish honey cooperatives.

Conclusions, proposals, recommendations

1. The scholars recognise that four types of capital ((natural, physical, human, and social) determine the process of sustainable economic growth and development, *inter alia,* well-being of the society.
2. The social capital positively correlates with innovation. Social capital can support innovation in several ways, predominantly through its effect on trust, shared norms, and networking. Scholars have argued that innovation is an important mechanism that transforms social capital into higher income levels and higher innovation performance.
3. Social capital is divided into three main categories: bonding social capital (links to people based on a sense of common identity); bridging social capital (links that stretch beyond a shared sense of identity); and linking social capital (links to people or groups further up or lower down the social ladder).
4. There are three major methodological approaches to evaluate the social capital: the micro-approach emphasises the nature and forms of cooperative behaviour; the macro-approach focuses on the conditions (favourable or unfavourable) for cooperation; and the meso-approach highlights structures that enable cooperation to take place. Membership in non-governmental institutions, *inter alia,* cooperatives is one of quantitative indicators of social capital development measuring.
5. The results of investigation of development of cooperatives in the rural areas (communities) of Latvia show that the number of agricultural cooperatives has been nearly constant in the past few years, while the net turnover and the number of members of cooperatives have significantly increased.
6. Comparing the number of cooperatives by branch, results show that cereals cooperatives make 39% of all cooperatives and they top the list by the number of agricultural cooperatives; milk cooperatives are in the second place with the share of 35%; and multipurpose cooperatives rank third with the share of 10% .
7. There are some areas identified for further research, e.g. to investigate the trends of development of other non-governmental institutions such as Rural Partnership associates, which operate on the local level; to study the social networks and professional networks' development, and inhabitants participation degree of urban and rural societies.

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RURAL DEVELOPMENT IN BALTIC STATES: CASE STUDY OF LITHUANIA (SURVEY OF THE LAST CENTURY)

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Abstract. Aim of the paper: in order to create the new most appropriate model of rural development in Lithuania, it is necessary to analyse specific situation, created under the influence of the last century historical events and its long-term consequences. Lithuania, as well as other Baltic states, has created the agrarian sector under the very complicated economical, social, and cultural circumstances. Each Baltic state (Lithuania, Latvia and Estonia) had some specific features of rural development, which were formed during the last century. The land reform carried out during the first period of independence in the first half of the twentieth century (1918-1940) led to the formation of farmer's social stratum, which comprised the majority of freshly created middle class in Lithuania. Growing family farms became as the main form of management in agrarian sector. But occupation and annexation of Lithuania interrupted the fast economic growth. Expropriation and enforced collectivisation of agricultural land completely destroyed farmers as a social class, and rural inhabitants became as state farmhands.
After the restoration of Lithuania's independence in 1990, the restitution of private land property was started. But implementation of democratic reforms became a very complicated process. Lithuania is still looking for optimal decisions of modern rural development. Concept of the new role of countryside is presented in the paper.
Keywords: last century, historical circumstances, rural development, system of modern functions, anthropological strategic methodology.
JEL code: P20, P21

Introduction

In the beginning of the 21st century situation of Lithuanian as well as Latvian or Estonian rural areas is quite complicated and determined by complex of objective and subjective factors. There are no such analogues in Western Europe (Aleksa, J.P., 1999; Apanavicius, R., 2012; Cepaitiene, A., 2012; Duzinskas, R., 2008; Grigas, R., 2009; Jasaitis, J.; 2006, Knasys, V., 2009; Luobikiene, I., 2012; Treinys, M., 2006 and 2011; Svirskis, A., 2008). It is also very different even from the situation of Central European countries, formerly belonged to Soviet influence region. There is no exhaustive information about consequences of the soviet regime in the majority of textbooks for students of secondary schools, colleges, and universities of many European countries. That is why so hard to understand specifics of the Baltics for the EU central institutions during the creation of common rural development policy.

Objective of the paper is to present main stages of rural development during the 20th century and beginning of the 21st century in Lithuania as a sample of the Baltic States transformations. **Tasks of the research**: 1) to survey an realisation of the first land reform in the 3rd decade of the 20th century and to describe increasing role of farmers in society; 2) to highlight main outcomes of five decades of soviet regime for the rural areas and their inhabitants; 3) to present specific possibilities of implementation of the sustainable rural development model in the post-soviet area and creating of long-term strategy for rural-urban partnership in the network society.

Methods of the research: 1) monographic method, based on analysis of historical sources; 2) survey of the latest researches, performed in some scientific institutions of Lithuania; 3) summarizing of the own researches, performed in Rural Development Research Centre of Siauliai University during 2005-2012.

The new role of non-urbanised and low urbanised areas in the so-called network society is stressed in the paper. We have presented changes in the concept of modern types of rural residence, possibilities of diversification of rural businesses, optimal exploitation of local geographic, natural and human resources, improvement of local infrastructure, creating the system of moral values for the organising of new rural-urban partnership.

Research results and discussion

1. Development of rural society in the early 1900s

Before the World War I, Lithuania was erased from the world map (Jasaitis, J., 2007; Treinys, M., 2011). Only few historians and public figures were familiar with the history of the Great Duchy of Lithuania as one of the high-powered states in the medieval Europe (Valionyte, B., 2009). Over the century Lithuania was annexed by czarist Russia's empire and named as its so-called North-West Land. Majority of landowners were persons, not connected with Lithuanian nation, mostly arrived or re-settled from Russia, Poland, and Germany. Local landless people were forced to work in their farms. In the beginning of the 20th century, rural

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areas of Lithuania, as other neighbouring countries, annexed by Russian empire, were perceived to be isolated and stagnant areas used for primitive agriculture only (Svirskis, A., 2008). Lack of infrastructure and means of communication and transportation confirmed this opinion, in spite of that most of the population lived and worked in the countryside. During the World War I and Bolsheviks' upheaval, majority of landlords withdrew from Lithuania or became as missing in this turbulent time. Their farms were derelict, overburden with huge debts, and untended (Aleksa, J., 1999).

2. Independent Lithuania (1918-1940)

On **16 February 1918**, Lithuanian Council declared the Act on Restoration of Lithuania's Independence. Majority of the new organised Lithuanian Army consisted of young rural people who clearly understood, that the future of Independent Lithuania was in their hands. They organised the defence of the native land against remains of Kaiser German army, Bolsheviks' gangs, and some just re-established Polish military units. In the beginning of the 3rd decade of the 20th century, the Republic of Lithuania was recognised *de jure* and came back to the family of independent democratic states.

The 1922-1926 period was very important for the state economy. The 1st land reform was started as expropriation of landlords land use system and creation of local family farms. There was shortage of food, but then managers of landlord's estates didn't organise any agrarian activity. In some cases, there was a direct sabotage, pointed against society needs. Lithuanian authorities (Aleksa, J., 1999, Treinys, 2006) decided to organise the family farms system as the most effective way for restoration of the state agrarian sector. During expropriation of the landlords land use system, 80 ha (later, 150 ha) were left for former owners. No one had the right to own more land for any purpose (agrarian or non-agrarian). Rural landless people, former cottars, received 8-10 or even 15-20 ha from the State Land Reform Commission according to the land quality or terms of service in Lithuania's army and units of state border protection. Former soldiers – volunteers, homeland protectors – became the first group of new land owners. The system of small and medium size farms was created and cooperation of farmers, food industry, and domestic market as well as exporters was organised. This land reform was performed in a relatively short time: essential shifts were made throughout three and a half years.

The system of farmers' homesteads was created **in 1925-1934** (Valstybininkas ir mokslininkas…, 2011). There was organised a purveyance of agricultural machinery and other equipment. Lithuanian Academy of Agriculture was established as well as the system of local schools for farmers and educational institutions for young (future) farmers were created. Model farms for demonstration of advanced agrarian technologies were established in all rural regions. Newly created farmers' associations organised the first exhibitions of agrarian products, pedigree cattle (cows, pigs, horses, etc.) and national handicraft production. Handicraftsmen (woodworkers, carvers, stonemasons, stove-makers, blacksmiths, tailors, bakers, shoemakers, weavers and knitters, etc.) became as a part of the rural society. Their original products became also a part of folk art and national heritage. The number of local land-surveyors, architects as well as teachers and doctors has increased significantly. Extreme attention was paid to the development of the science and education system.

Economic activity of farmers and other rural workers helped Lithuania to avoid some heavy outcomes of the world economic crisis, named Great Depression (Valstybininkas ir mokslininkas…, p.36-37). **In 1934-1940**, export of food and other agrarian and forestry production was extended and became the basis for strengthening the national currency. Lithuanian currency – Litas – was recognised as convertible. Farmers became a politically active social class: their representatives used to work in municipalities, districts' institutions as well as in national Parliament (Seimas), etc. Lithuania successfully developed its energy supplying system, light and alimentary (food) industry, highroads and railway system as well as aviation. A flying squadron of Lithuanian-made airplanes ANBO-IVL visited 12 capitals of European countries: Stockholm, Copenhagen, Amsterdam, Brussels, London, Paris, Roma, Vienna, Prague, Budapest, Bucharest, and Moscow. A total distance of this flight was over 9 thousand kilometres.

In **1938–1940**, approximately 75% of Lithuanian population used to live in the countryside, although significant part of them had jobs in cities and other urbanised areas. Majority of urban people were connected with rural economics. Small and medium industrial or public utilities enterprises were located in townships, and it helped to employ rural inhabitants who wanted to obtain new, non-agrarian professions. Many of them became owners of private businesses. Lithuania's economics reached the same level as Finland, Denmark, or the Netherlands.

3. The Second World War and annexation of the Baltic States (1939-1945)

The peaceful development of Lithuania as well as Latvia and Estonia was interrupted in June 1940. The tragedy of the many European nations was approaching. Two dictators, Stalin and Hitler, were planning to manage the whole world, but later they decided to prove their superiority in the war field. Many of the current generation of historians did not have any information about the joint Soviet and Nazi military parade in Brest-Litovsk (now a city in Belarus) in the autumn of 1940, after occupation of Poland. Only few of them know about the mass killings of Polish and Lithuanian officers in Katyne or sending them to Vorkuta, Norilsk, and other death camps. There is no exhaustive information about these Stalin's regime crimes in many textbooks for students of secondary schools, colleges, and universities of many European countries.

In 1940, four European states (Lithuania, Latvia, Estonia and Finland) received Stalin's ultimatum: let Soviet army units come in and then become a part of Bolshevik Empire. Only Finns were able to say "No!" and they immediately organised the defence of their homeland. Now Finland knows everybody who lost one's life during the winter of 1940. Finns also lost a part of the state territory, but saved the state's independence.

Lithuania was occupied on 15 June 1940 by the Soviet Union. After one year of annexation regime,

on **14-15 June 1941,** the first mass deportation of Lithuania's people was organised. During night time, over 36,000 deportees, i.e. teachers, engineers, artists, state workers, farmers, priests, etc., were placed in wagonloads designed for transportation of animals and were deported to the Russia's North where even grass doesn't grow. Majority of them lost their lives under the Arctic cold and starvation.

Then in the end of June 1941, Hitler's army re-occupied Lithuania and Hitlerian terror was started. A Lithuanian proverb describes these tragic events and both occupants: "One is red like Satan, the other is brown like a rabid dog".

4. The Soviet occupation period (1944–1990)

At the end of WW II, in 1944, the Red Army occupied Lithuania again. This rural country was re-annexed until 1990. Throughout almost the whole decade (1944–1954), Lithuanians tried to fight for the restoration of their homeland's independence, but national resistance was strangled. Majority of resistants were killed in the battles or died later in prisons and death camps. During 1940–1990, Lithuania lost one third part of its own population. In 1940–1944, thousands of Lithuania's residents went into exile to some West countries: Great Britain, France, Canada, the USA, Australia, etc. Hundreds of thousands of our villagers (former farmers) were deported during the first post-war decade to the shore of Arctic Ocean, to Siberian tundra, and other Gulag's death camps. A lot of them passed away during the deportation or died under the starvation, terrible cold, or heavy work conditions etc. Only a small amount of them was able to come back after Stalin's death. Now almost all deportees are identified, and there are no more speculations on this issue.

Nevertheless, the impact of these traumatic events on the rural areas' development has not been properly evaluated until now. In reality, it is very hard to calculate all these losses and destructions. The social stratum of Lithuanian farmers was disrupted completely in **1945–1949**. The enforced collectivisation of agricultural land destroyed farmers as a social class, and the civic activities of rural inhabitants were devaluated. Rural people's impact on state development was diminished. Their private farmsteads were swept away, and new settlements, even consisting of blockhouse villages, were formed (Svirskis, A., 2008, Treinys, M., 2011). In accordance to the Soviet law, private business was declared as illegal and forbidden. Majority of craftsmen were replaced by industry.

Lithuania's urbanisation was very intensive after the WW II. Agricultural production was intensified, and the industrialisation was rapid. A number of people, directly involved in primary agricultural activities, decreased very rapidly. A lot of rural inhabitants were forced to move into cities. The mechanisation of agriculture dismissed the labour force; these people had to look for new jobs in urban areas. These changes made a sharp impact on education, professional structure, residence, and even on everyday life. Lithuania became like a huge cow-house and piggery producing milk and meat products for Moscow, Leningrad (now – St Petersburg), and other Soviet Empire cities.

The Soviet occupation period had the horrible outcomes for the whole agrarian sector and life of all rural areas. Local rural population was forced to leave their native birthplaces. The Soviet model of agriculture and industrialisation caused big losses for the landscape. For example, sewage from huge piggery built on the Nemunas river (the biggest river of Lithuania) shore flowed up to the soil, to underground water, and even to the river. Collective farms' fields were polluted with nitrates and other remains of fertilisers, liquid dung, and pesticides. Deforestation and intensive but slapdash irrigation connected with efforts to destroy the traditional structure of farmers' homesteads as soon as possible caused a huge erosion of soil. Surface of many rural places was changed by using heavy tractors, bulldozers, and earthmovers. Now the soil erosion is a heavy subsequence after moving out trees or bushes, many years serving for protection of crops against strong winds. Many industrial factories became locations of pollution of air, surface, and underground water. For example, the flow of sewage from a Siauliai packinghouse was funnelled to a small river, running around the well-known around the world holly place, the Hill of Crosses.

Natural wetlands, small forests and birds' breeding-grounds were completely destroyed. Military camps and bases with nuclear weapons have been built up in Lithuanian forests. These places became heavy polluted with oil products, broken pieces of constructions materials, various trashes, broken glass, and pieces of metal. These bases were declared as secret places, the so-called "no-go areas", where only militants had a permission to work and live. Now tourists visiting Lithuania have a chance to see the former Plokstine missile base near a scenic Lake Plateliai in Plunge district, designed as a Cold War Museum.

However, the most negative and long-lasting impact of the Soviet era on rural development was made on the behaviour pattern of rural inhabitants. All positive features of Lithuania's land reform carried out in 1922–1926 were liquidated. The land was declared as the state property, and huge so-called "collective" and "Soviet" farms have been established. Former farmers became workers of state-owned farms. There was no possibility for developing their entrepreneurship, strategic management skills, and private responsibility. Fifty years living in the so-called "planned economy" disaccustomed rural people from self-sufficient farming performance (Vosyliute, A., 2010; Luobikiene, I., 2012).

5. Restoration of independence and restitution of private land property

The first signs of positive shifts in rural economy appeared in Lithuania in the middle of **1989**, after passing the Peasant Farm Bill. Then, after breakdown of the Soviet-era and restoration of Lithuania's independence on **11 March 1990**, the restitution of private land property was started. Nevertheless, implementation of democratic reforms became a very complicated process under the influence of international and domestic circumstances (*Kaimas luzio metais,* 2008; Knasys V., 2009). The first law act determining the post-Soviet land reform in Lithuania was passed in **1991**, but it is still unfinished – even after two decades. Former collective farms' chiefs and Soviet collaborators permanently tried to block all

the necessary reforms. The main law content about the restitution of private land property was changed many times. Because the former collective farms leaders have a possibility to manage the whole information, many of them now became powerful landlords. Some of them have 14,000–34,000 ha farms, using the so-called offshore companies, former networks and their economically and politically influential contacts.

As it was mentioned above, the generation of former landowners was destroyed during fifty years of Soviet regime. The whole infrastructure of private farms and former style of living was also destroyed. Only few survivors were able to start the farming, but even they had no agriculture machinery adapted to the modern private farming and no experience in building strategy of agricultural business in accordance with the western style free market economy.

There were no continuity in the rural development policy between the 1st (1922–1926) and the 2nd (started in 1991, but still unfinished) land reforms. Some quick decisions were taken without comprehensive economic evaluation and became negative for a new stratum of farmers as well as for former workers of collective farms. For example, farmland always was a real estate but under the land reform rule a landowner now had the right to get the same amount of farmland in another location of the state, near his or her current residence or work place. This decision has become a direct contrast to the economic logic because the real value of farmland always depends on its geographic location, productivity, landscape, etc. This rule caused a lot of confusion, distorted the land market and even created prerequisites for corruption among some land reform administrators (*Kaimas luzio metais*, 2008; *Agrosocialiniu mokslu ir studiju …*, 2006, Apanaviciute, K., 2011).

In **1990–1994**, the agricultural production decreased by 50%. Unemployment increased rapidly, and health care and other social welfare structures were also neglected, since these were usually connected with former state industrial companies or state farms organisations. It created difficulties and disappointment not only for unqualified rural people but also for experienced specialists: economists and agronomists, stockbreeding workers and veterinarians, librarians, organisers of cultural activities, teachers, etc. The last decade of the 20th century was a very complicated period for rural areas: there were no defined strategy of agriculture and no clear perspectives for development of alternative non-agrarian business. Due to the recession in industry as well as in utility services, cities were unable to provide jobs for unemployed rural people.

Nevertheless, after the first difficult years of negative trends, living standards rose rapidly during the first decade of the 2000s. In **2001–2008**, until the financial crisis hit the world in 2008, Lithuania had one of the fastest growing economies in Europe. New advanced agrarian technologies, especially in arable farming and crop producing, came into Lithuanian villages. Farmers started using new, significantly more productive Western style agricultural machinery, new productive species of crops, etc.

The globalisation trends have had much more impact on rural economy and structure of rural inhabitants after joining the EU. During **2002–2007**, scientific investigations showed that the professional structure of the rural population again had changed dramatically. The population of rural residents working in the urban areas had increased from 35 to 45 % and the population of rural business people involved in a non-agricultural sector had increased only from 2 to 4 %. Retired and disabled people constituted approximately 30 %. Unemployed people on welfare schemes constituted approximately 10 % (Jasaitis, J., 2009; Jasaitis, J., Ratkeviciene, V., 2012).

When Lithuania joined the EU in 2004, agricultural workers constituted 13 % of the total employable population. The agricultural sector was affected by the EU policies and subsidies and an increasing number of rural inhabitants could have training for jobs outside the agricultural sector. Unfortunately, development of private individual or local community business is proceeding very slowly. An extreme and ultimate individualism determined by the extra-liberal attitudes, spread throughout two recent decades in the mass media is the main obstacle for cooperation among individual producers. There is much of distrust and jealousy as well as disrespect to the law in the contemporary post-Soviet society.

In **2008–2009**, Lithuania was struck particularly hard by the financial crisis. In 2009, the real GDP decreased by 18.5 %. This caused high unemployment, cuts in public spending, difficulties to invest etc. In **2012**, unemployment of rural employable inhabitants has reached 20%. Each third young person has no permanent job. Despite that, the agrarian sector remains one of the most stable sources not only for domestic market, but also for the export. Lithuanian organic food production is much-liked in eastern and western markets. Some of food products are recognised in the EU as pieces of national heritage.

6. Nowadays situation

The rural parts of the country still bear a negative image among urban people, and this prevails even among decision-makers. The popular belief is that the main task of rural areas is the agricultural sector. Decisions affecting rural citizens are made mostly without their participation, and this divides the society. The prolonged but unfinished land reform and many other policies discourage educated people from working in rural areas.

The landscape is sometimes destroyed by vandals or simply irresponsible people and by activities from fast profit seeking businesses. For instance, deforestation is a common problem, causing loss of biodiversity and increased erosion. Local rural roads are damaged by heavy vehicles, used in the primitive forest business (total lumbering without re-forestation) and heavy agricultural machinery, but necessary maintenance is not being organised. Agricultural land is left untilled, ruins of useless Soviet-era buildings and wrecks of damaged machinery make the rural landscape ugly. Over half of million hectares is still unused and mostly neglected. Outskirts of local small forests have become a dump, with no one responsible for cleaning it up.

Fortunately, some new positive trends have recently appeared. New forms of traditional and non-traditional farming are being developed, new commercial products and other activities are being created in the countryside, and new concepts of residence in suburban

or rural areas are beginning to be implemented (Melnikiene, R.; Vidickiene, D., 2010, Isoraite, M., 2008, Jasaitis, J., 2010).

7. People and nature

The latest social science research works have recently been carried out to investigate citizens' ideas on future sustainable development in rural Lithuania. Questions on what kind of society they would like to create, what social stratification they would welcome and what they think about respect to private property were included into our questionnaires. They revealed that people having most experience with "collective property" had some trouble to understand how to evaluate the concept of private property. They also had some trouble to perceive their own responsibility for the state and society and to take part, for example, in elections, self-governance, and even local communities' activities. For those who are convinced that the state has to care for everybody, it is hard to imagine a vision of personal prosperity and understand that each individual is expected to create his or her own long-term strategy of personal performance (*Rural Development and…*, 2012)

The latest research studies show that people actually cannot clearly articulate their wishes because they are not able to understand the new role of suburban and other countryside areas in the information society. Many of them cannot imagine prospects of industry and other non-agrarian business development in the rural space. However, new tendencies of people's behaviour based mostly on analysis of other countries' economic and social experience are necessitating some essential changes in their notions and attitudes. For example, a lot of urban people, especially younger generation, are focusing on creation of their own homesteads in the countryside areas. As Lithuania has a well-developed road system, new settlements are just created in the former small and quiet towns and even villages located near main highways.

Big social problems lie in the huge gap between the modern society and nature. The respondents, even living in the countryside, obviously are not able to identify objects of nature and to describe their availability and importance. Their knowledge on nature is not based on personal experience. They cannot recognise many objects of wildlife (herbs, trees, birds, etc.) in a natural environment and cannot understand the interaction among ecosystems. They do not perceive the importance of agriculture and ecology. Most of them cannot understand why it is very important not to pollute. They do not know how to behave in the forest, meadow, by the lake, or on the river bank. In addition, a lot of them are not able to identify their personal birthplace as very significant for the whole life. They do not have a sense of homeland love because post-Soviet time families often had no permanent place of residence when they were children and teenagers.

The analysis of migration processes also shows two contradictory changes in the structure of rural and urban population: 1) rural people who are looking for jobs move to cities; 2) more prosperous urban social groups are trying to obtain private households in suburban areas. These tendencies are much related with changes in business development: more and more jobs can be created by small flexible business companies in residential houses; and modern industrial factories can be established in suburban areas where good infrastructure (highways, etc.) and fast Internet networks have been installed.

The understanding of personal (family) spiritual life and communication between generations is another area investigated through interview surveys. Possibilities for meeting places or household communities where people with similar professional or business interests could meet were also perceived as activities suitable for rural areas.

Conclusions and recommendations

1. Possibilities of implementation of new model of rural development are limited by long-term historical circumstances, professional experience, and competences of population and current business environment. As significant obstacles for shift to the new forms of economic activity can be the lack of individual business experience and risk's fear. Clear state strategy, pointed out on education of so-called owner's society can encourage rural business development.
2. In the 20th century, Lithuanian farmers had only less than two decades to obtain experience, which is necessary for performing their farms activity in the free market. However, fast and purposeful development of private farms was suddenly cancelled. Social stratum of farmers was disrupted completely in the few first years of the soviet regime – in 1945–1949. The whole infrastructure of private farms and former style of living was also destroyed.
3. The negative and long-lasting impact of the Soviet era on rural development was made on the behaviour pattern of rural inhabitants. During the occupation period, the approach of independent owners was ruined, and the system of their moral values was destroyed. Period of soviet annexation has served for the formation of special type of personalities – Homo Sovieticus. Such type of individuals is completely dependent on central and local government guidelines. There was strictly prohibited to be engaged in the personal self-sufficient economic activity. All manufacturing facilities were owned by the state. Planning of economy was performed only by the central government.
4. The first signs of positive shifts in rural economy appeared in Lithuania in the middle of 1989, after passing the Peasant Farm Bill. After breakdown of the Soviet-era and restoration of Lithuania's independence in 1990, the restitution of private land property was started. However, implementation of democratic reforms became a very complicated process under the influence of international and domestic circumstances. There were no possibilities to get the agricultural machinery, adopted for the modern farming in small and middle size farms. Descendants of former owners had no experience in building strategy of agricultural business in accordance with the Western style free market economy. Many of them decided not to participate in restoration of family farms or lost their farmland during few years.

5. The main discussion about the future of Lithuanian rural areas is focused on the decision of appropriate agricultural model. Nowadays, priority is based on the creating of large-scale farms, and it is a contrariety to the former family farms model. There is no enough attention to the development of alternative, non-agrarian businesses. That is why rural population is sharply decreasing, and our young generation of villagers mostly prefer to choose urban space for living and work. But the society of hired labourers can be evaluated only like "workforce" and there is no clear difference between the behaviour of farmhand and Homo Sovieticus. The main goal of large-scale farms is a "profit at any cost". The increasing of productivity and profitability in many cases is warring with the sustainable development and careful, ecological use of resources as well as with education of the knowledge society.
6. Rural areas still bear a negative image among urban people, and this prevails even among decision-makers. The prolonged but unfinished land reform and many other contradictory policies discourage educated people from working in rural settlements or remote small towns. This leads to ineffective use of local resources and formation of social inequality and dividing.

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POSSIBILITIES FOR THE USE OF INNOVATION IN VIDZEME PLANNING REGION

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Abstract. Innovation in Vidzeme Planning Region is realised in the frame of National innovation system, the elements of which correspond to innovation and innovation system theories, and the best practices of which are applied in the most innovative countries of the world. Nevertheless, innovation in Vidzeme Planning Region is fragmented and is being introduced slowly, and its impact on economic development is faintly visible. It witnesses a problem, which was identified, analysed and its solutions searched by the authors. The aim of the paper is to research the potential of capacity building of innovation system elements in Vidzeme Planning Region. For the achievement of the objective the following tasks were carried out: 1) to analyse the most significant theories on innovation, innovation systems, and regional economic development; 2) to characterize and analyse the innovation system in Vidzeme Planning Region and capacity of innovation elements; 3) to work out the capacity building opportunities and directions of innovation elements of Vidzeme Planning Region. In scope of the research, the essence of innovation was identified, theoretical aspects of innovation system and its elements were examined; the elements of innovation system were defined; the existing elements of innovation system in Vidzeme Planning Region were identified, analysed and assessed; and proposed capacity building measures of the elements of innovation system were elaborated by the authors. The authors have concluded that Vidzeme Planning Region has the necessary elements of innovation system in place; the capacity of these elements is insufficient; and the preconditions and opportunities exist for increasing the capacity.
Key words: innovation, innovation system, regional economic development, Vidzeme Planning Region.
JEL code: O31, R11, R13, R58

Introduction

In the National Development Plan of Latvia for 2014-2020, the government of Latvia has set up for itself and for inhabitants of the country the objective - economic outbreak. A significant role in the achievement of the objective is assigned to growth of national economy and development of territories striving to grow. One of the tools, used for promotion of economic development in many countries around the world, is innovation. Successful creation and exploration of innovation requires understanding its nature, preconditions necessary for development and implementation of innovation, and elements, having impact on the number, frequency, and sustainability of innovation. All previously mentioned elements form innovation system. Innovation in Vidzeme Planning Region is realised in the frame of national innovation system, the elements of which correspond to innovation theories and innovation system theories and the best practices applied in the most innovative countries of the world. Nevertheless, innovation in Vidzeme Planning Region is fragmented and is being introduced slowly; its impact on economic development is faintly visible. It witnesses a problem, which was identified, analysed and solutions searched by the authors.

Hypothesis – the increase of capacity of elements of innovation system can have impact on the development of Vidzeme Planning Region. ***The aim*** - to research the potential of capacity building of innovation system elements in Vidzeme Planning Region. To achieve the aim, the following ***tasks*** were carried out: 1) to analyse the most significant theories on innovation, innovation systems, and regional economic development; 2) to characterize and analyse the innovation system in Vidzeme Planning Region and capacity of innovation elements; 3) to work out the capacity building opportunities and directions of innovation elements of Vidzeme Planning Region. In the research, the following ***methods*** *were used*: monographic, desk research, logically constructive, and graphical reflection methods; analysis and synthesis; econometric and statistical analysis methods.

The information sources used for the research were publications in international reference scientific sources and periodicals, strategies and policy documents, legislative acts, reports of governmental institutions, statistics, and information obtained in surveys conducted by the authors.

Research results and discussion

1. Theoretical aspects of innovation nature, elements and systems

The range of theoretical aspects of nature, elements and systems of innovation is comprehensive and manifold. The research of innovation started at the beginning of 20th century, when N. Kondratieff analysed long waves (cycles) and made a conclusion that innovation is one of their reasons. In accordance with N. Kondratieff's theory, long waves are developing because of origination of innovation clusters that initiate technological revolutions, and these revolutions initiate new industries (*Smihula D., 2010*). J. Schumpeter, who researched the nature of theory of innovation processes and the main concepts, explored these cognitions for definition of innovation, naming them "scientific and managerial combination of new production factors, motivated by entrepreneurial competences, and including development and implementation of products and methods; finding, acquiring and subduing of new markets; discovery and

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exploring of raw materials; creation of new industries and enterprises within these industries", emphasising the connection of internal logics of innovation with acceleration of economic development. However, 28 years later he interpreted innovation as "changes, which are aiming to introduce and explore new types of consumer goods, new production and transport means and forms of organisation of production", accentuating the role of entrepreneurs to bond invention and innovation and their ability to realize innovation in life (Abeltina A., 2008).

The research of innovation in Latvia was started comparatively recently - in the middle of 90s of the last century. Latvian researchers were involved into elaboration of national innovation concept, which defines innovation, national innovation system, and national innovation policy. V. Dimza (2003), A. Vedla (2007), A. Abeltiņa (2008), and others have provided the latest innovation research in the context of economy. There are several definitions of innovation used in economic environment of Latvia. In the National Innovation Concept, accepted by the Cabinet of Ministers on 27 February 2001, innovation is defined as "process, where new scientific, technical, social, culture, and other area developments and technologies are realised as a product or technology" (National Concept of Innovation, 2002).

During almost 100 years since innovation has been researched, scientists still in the whole world continue discussions about definition, nature and qualities of innovation. As much as ambiguous is the definition of innovation, is opinion of researchers about the nature of innovation. The question - what is innovation: instrument (tool) for achievement of preferable result, action (process) or outcome (product, service) - has not been unequivocally answered.

K. Freeman promulgates opinion, that "… innovation in economic sense is commercial exploration of a new product, process, system or facility." (Freeman K., 1982) He as well as L.Soete holds a view that speed of economic development is directly dependent on emergence, development, and obsolescence of technological systems and emphases the role of developing enterprises in innovation process. P. Drucker named innovation "a special tool for entrepreneurship, which endows resources with ability to create welfare" (Drucker P., 1985). B. Twiss calls innovation "a process, where invention or idea acquires economic content". F. Nikson defines it as "totality of technical, production and commercial measures, which is influenced by new or improved production processes and facilities" (Abeltiņa A., 2008).

In nowadays, in the international environment the explanation of innovation elaborated by the group of experts established by the OECD - Organisation for Cooperation and Economic Development and included in Frascati Manual is widely used. In accordance with 2002 year's edition of the manual, innovation is "all of the scientific, technological, organizational, financial and commercial steps, including investments in new knowledge, which actually, or are intended to, lead to the implementation of technologically new or improved products and processes" (Frascati Manual, 2002).

The proposed explanations of innovation and its nature differ and continue to progress as interpretations ground on subjective experience and comprehension of researchers about economics and its processes.

The discussions about the role and impact of individuals and social processes on innovation were started among researchers in the middle of 80s of the last century. Abernathy and Clark (1988) *added to the* already defined innovation elements knowledge created and accumulated and experience of individuals and relation between participants of economic systems. Therefore, they more clearly marked the role of individuals, their relation, and interaction in innovation processes. Few years later J. Niosi (2002) included human capital as the first among all other elements of innovation system, regarding individuals as creators, depositors and distributors of productive knowledge. B. Lundvall (2008) added to those opinions the idea about significance of creativity of individuals as well emphasised the importance of the number of individuals as critical mass in innovation processes, saying that the most successful economies of the world are those, which involve the largest possible number of people, including front-line staff in creative thinking, doing, and exploitation of results The authors agree with the opinion that as less "creative people" are separated from the rest of society, as more successful is economy.

The development factors or elements have also been viewed and analysed in the context of regional economic development. Intarakumnerd et al. (2002) and Padilla-Perez et al. (2009) have stressed the role of individuals and institutions in acquisition, creation and exploration of knowledge as well emphasised the necessity for socially and economically conductive environment promoting development. V. M. Cohen and D. A. Levinthal (1990) are accentuating the significance of a cognitive power. A. Rodriguez-Pose (1999) is stressing social, political and institutional environment of local territories. Some researchers (Granovetter, 1985; Knack and Keefer, 1997; Zack and Knack, 2001) pay attention to social environment, highlighting, that positive social environment and non-formal networks are promoting learning, transfer, and dissemination of knowledge much more effectively than it is realised in formal environment. Non-formal approach is enabling to reach targets, which cannot be realized without social contacts and mutual confidence (Trigilia, 2001).

Researchers of innovation and its systems as well researchers of regional economic development, whose works have been studied by the authors of the article, have regarded innovation and economic development as regionally ongoing processes, where local (in the context of the article - regional) social and institutional elements play an essential role. Only their opinions split on the question, which the most significant of these elements are. The authors of the article summarised the elements and structured them into four groups, taking into account both: innovation and regional economic development aspects, naming them "elements of innovation system necessary for promotion of regional economic development". They are: RESOURCES (land, natural resources, and material and technical basis); PARTICIPANTS OF ECONOMIC SYSTEM AND THEIR COGNITIVE POWER (individuals, enterprises, and public and private institutions promoting innovation); INSTITUTIONAL FRAME (formal mechanisms created for coordination of economic processes: politics,

legislation, and regulatory system of operation); SOCIAL ENVIRONMENT (generally accepted public opinion, cultural and behaviour traditions and habits, and place and role of individuals and institutions in local, national, and international networks). All the elements were researched in Vidzeme Planning Region, which was viewed and analysed in the context of a planning region, the territorial unit of which is determined and approved in the Regulation No 391 "Regulations on Territories of Planning Regions", approved by the Cabinet of Ministers of the Republic of Latvia on 5 May 2009.

2. Vidzeme Planning Region in situation of global competition

Authors have researched four groups of innovation elements: 1) resources; 2) participants of economic system and their cognitive power; 3) institutional frame; 4) social environment. The article includes more detailed information about findings with regard to participants of economic system, their cognition, and institutional frame followed by a short summary of findings with regard to resources and social environment, accentuating the most significant cognitions.

Resources. Vidzeme Planning Region is located in the northeast part of Latvia and the European Union and is Latvia's major region by size (15.2 thousands km²), covering 23.6% from the total area of the country. The region has 290 km long internal border with Estonia and 46.4 km long external European Union border with the Russian Federation. Spatially and functionally, the region is linked with Latgale, Riga, and Zemgale planning regions. The region has a large number and various natural resources. Besides, 51.7% of the area is covered by forests, and it is 26% of the whole countries' wood resources. Whereas, 34% of the region's area is agricultural land, which is an important recourse for agriculture, which for its part is producing food products and raw materials for food production. The region is rich in landscapes, protected landscape districts, protected nature areas, parks, reservations, rivers, and lakes. There are 95 mineral deposits in the region in accordance to the data of **Latvian Environment, Geology and Meteorology Centre. The main types of mineral deposits are peat, quartz sand, dolomite, and clay. Moreover,** 35.2% of the whole countries dolomite is placed in Vidzeme Planning Region (Latvijas regionu ekonomikas…, 2011).

The governors and managers of the resources very often are not aware of possibilities and ways how the recourses can be applied as well have no capacity to use these recourses effectively. This statement refers the most of mineral deposits, which are mainly used for production of traditional materials and not so much demanded in the market anymore. The researches and experiences studied have given evidence that the minerals can be used in unaccustomed areas. For example, clay is a raw material for production of cosmetics, porcelain, paint, and products for agriculture. The research institutions in Latvia have created and accumulated knowledge about qualities of minerals and their possible application, yet it has been prevented due to the lack of collaboration between researchers and governors and managers of resources. There is increasing demand for high added value food products in the world markets, for example, organic and functional food. Natural resources of the region are appropriate for production and processing of such food, yet most of the food producers and processors of the region are not ready to start a business in a new niche and compete in global markets.

The authors have also analysed other natural resources, buildings, traffic infrastructure, and telecommunication networks. In addition, the role of location of the region as innovation element was analysed in scope of the research. The authors agree with the findings of other researchers that location, land, material, and technical resources are significant, yet these attributes cannot create innovation by themselves. They become valuable when ideas and knowledge are created about their exploitation. Whereas, ideas and knowledge are the basis for innovation.

Participants of economic system and their cognitive power. Information about participants was gathered and analysed in this chapter, considering quantitative and qualitative indicators. Cognitive power means - ability of individuals and institutions to perceive, acquire, evaluate, and apply knowledge.

In accordance to the data provided by the Central Statistical Bureau, the total number of inhabitants in Vidzeme Planning Region was 228 331 at the beginning of 2012, and it is 10.3% of the total number in Latvia. The comparison of the data of 2012 with the data of 2007 (total number - 240 347) reveals 5% decrease. The number of economically active inhabitants has slightly increased (0.4%) between 2009-2011, whereas the number of people until economically active age slightly decreased (0.5%). The present provision of labour force can be viewed as satisfactory. Though, some data is raising authors' concerns about the future: the region is the largest in size among other regions, yet the number of inhabitants is proportionally the smallest; there are only 29 877 persons until age of 14 living in Vidzeme Planning Region, and it makes up 10.16% from the region's inhabitants (corresponding indicator in Zemgale - 12.9%, Kurzeme – 13.97, Latgale – 13.69%).

The education level of inhabitants of the region was analysed taking into account the data about persons from age 25, when theoretically an individual has graduated a college or a university, acquired higher education, and started a full time work. Table 1 below is showing that more than one third of inhabitants have professional or vocational education. Less than 20% of the total number has acquired higher education and 43.75% inhabitants have secondary, basic, or lower education level. Taking into consideration the role of critical mass and capacity of human resources in innovation, these data should be viewed very critically.

While looking at the employment situation, the authors found that most of the inhabitants are employed by manufacturing industry (13 750 persons) and nearly the same number in areas of wholesale and retail (12 426). Only 1724 persons (2.19%) were working in area of professional, scientific and technical services (Central Statistical Bureau, 2012). There is no data available whether companies are employing researchers and high-level experts for development and implementation of new products and technologies.

Table 1

Education level of inhabitants of Vidzeme Planning Region on 1 March 2011

Education level	Number of persons	% from the total number
Total number of inhabitants (age 25-74), inter alias:	**131 420**	**100**
Doctor's degree	138	0.11
Higher education	25 261	19.22
Professional or vocational education	48 525	36.92
Secondary education	31 714	24.13
Basic/elementary education	23 401	17.81
Education lower than basic/elementary	2 129	1.62
Illiterate persons	252	0.19

Source: authors' construction based on the data of population census, aggregated by the Central Statistical Bureau (2011)

Table 2

Change of number of economically active statistical units in Vidzeme Planning Region in the time period 2008-2010

Economically active statistical units depending on legal status	2008	2009	2010
Total:	13964	13883	14533
Self-employed persons	6074	6279	6634
Individual merchants	908	912	900
Commercial companies	3882	3864	4010
Peasant and fishermen's farms	3100	2828	2989
Number of economically active individual merchants and commercial companies on 1000 inhabitants	20.2	20.4	21.1

Source: authors' construction based on the data of the State Regional Development Agency (2012)

There were 14 533 economically active statistical units in Vidzeme Planning Region in 2010 (Central Statistical Bureau, 2012). The data in Table 2 provide information that the major type of business in the region is self-employment (45.65%), but the least - individual merchants (6.19%). Commercial companies are composing nearly one third (27.59%) of the total number. The comparison of the data between 2008 and 2010 reveals the increase of the total number for almost 5%, and it has to be valued positively.

While analysing the data of enterprises' performance, it should be considered that medium and large size companies exporting products and services provide the most significant contribution to regional development. These companies have already learned to sight global market demands and find possibilities how to respond to these demands. This let the authors to conclude that participation in international environment is raising awareness on manifold nature of resources and processes and is creating the basis for development of cognitive power, which is a precondition for innovation. Micro and small size enterprises are operating at local, national markets, or external markets located very nearby: Russia, Lithuania, and Estonia. While working in a more "narrow" market, which demands mainly traditional products and services, companies are not aware of global challenges and are not motivated for innovation.

There is a large number of public and private institutions directly or indirectly supporting and promoting innovation in the region: the Administration of Vidzeme Planning Region, 26 local municipalities, three research institutions, Vidzeme University of Applied Sciences, seven professional and lifelong learning education institutions, two business and innovation incubators, Vidzeme Food Cluster, and more than 30 others in the region and 60 in the country.

Institutional frame. The overall scope of the research includes more detailed analysis of institutional frame, also observing national and European policies, legislation, and regulations. The article includes summary of the part of the study with regard to institutional frame of Vidzeme Planning Region, which performs activities in accordance to its main policy document - Vidzeme Planning Region Development Programme for 2007-2013. The programme as well as programmes of local municipalities include measures aimed to support innovation and entrepreneurship. The authors analysed several programmes and found that the programmes of local municipalities frequently do not respond to existing situation and the measures planned are not based on resources available and their exploitation possibilities. Sometimes programmes are reflecting the objectives and priorities stated in national policies as the relevance of local plans to national is one of evaluation criteria

Table 3

Attitude towards civic values depending on the age of inhabitants

(% from the age group; answers «significant» and «very significant» are summed, *n* = 1004, of them - 103 respondents were inhabitants of Vidzeme Planning Region)

Age group	Consideration of laws and rules	Responsibility to pay taxes	Wish to be informed about ongoing in the society
All	87.1	77.0	75.8
18-24	82.6	73.1	70.2
25-34	86.2	67.4	73.4
35-44	89.4	77.6	72.8
45-54	87.6	76.9	78.7
55-74	88.2	85.1	80.1

Source: Latvia. Human Development Report 2010/2011. National identity, mobility and capacity, 2011

when municipalities are applying for the EU funds. The second significant aspect well seen in the programmes is the wish of municipalities to improve their public infrastructure at any price in buildings, the suitableness of which is difficult to understand, instead of investing in measures promoting economic activities. Although local municipalities have included innovation and entrepreneurship support measures in the programmes, practically support frequently ends with dissemination of information about the EU Structural funds available for enterprises. The results of the survey of local municipalities provided by the Administration of Vidzeme Planning Region in 2012, show that municipalities do not cooperate with enterprises located in their territories (*Inovaciju ekonomikas attistibas…, 2012*).

There are two other documents including aspects of innovation and elaborated by two distinguished groups of experts in 2011: 1) The document „Latvijas regionu ekonomikas attistibas perspektivas un virzieni, 2010-2011", 2) „Vidzemes ilgtermina attistibas scenariju analitiskais zinojums". Both documents have permissive character. However, the second one should be highlighted with the regard to innovation as it accentuates the connection and interrelation of regional and global economy, the role of specialization, formal and non-formal cooperation, and networking necessary for innovation (*Vidzemes ilgtermina attistibas…, 2011).* The document is a good tool for encouragement and development of communication among various stakeholders interested in innovation.

Social environment. Although these elements were studied more broadly, the article includes an overview of the study about attitude of inhabitants towards civic values: consideration of laws and rules, responsibility to pay taxes, and wish to be informed about ongoing in the society as these aspects have to be viewed as significant with regard to innovative entrepreneurship and economic development. Looking at the data in Table 3 (below) it can be presumed that all age groups are dutiful (87.1% at the average), however the opinion about responsibility to pay taxes is much more lower (77% at the average). Moreover, inhabitants of the age group 25-34 years, potentially the most active entrepreneurs and innovators, are more negative towards responsibility to pay taxes - only 67.4%. Such trend is highlighting the necessity to realise measures promoting society's awareness of significance of paying taxes as well measures promoting improvement of laws and regulations that affect entrepreneurship and innovation.

Awareness of ongoing in the society is another important aspect for innovation. Information can reach inhabitants occasionally and through purposeful search. The authors would not like to deny the significance and value of occasionally obtained information as some "qualitative" information, necessary for development of productive knowledge, can be found by chance in media, most often in internet, newspapers, and magazines as well through personal contacts. However, purposeful searching is more essential for the development of productive knowledge. In order to understand how inquisitive inhabitants are, their "wish to be informed about ongoing in the society" was studied by the authors. Looking at the data in Table 3 (above), it is evident that inhabitants over age 45 are more willing to be informed than people in the age group 18-44. In addition, education level affects the wish to be informed. If 81.2% respondents having higher education are willing to be informed, then the rate between inhabitants having primary and lower education is only 67.8% (Latvija. Parskats par..., 2011). There are no data available about the volume of "qualitative" information in the total range of information accessible and how inhabitants have used it so far. Possibly, lower wish to be informed among younger people and people with lower education level can be interpreted with lower cognitive power to appraise the value of information, differentiate the qualitative one from inferior, and apply it.

3. Evaluation of possibilities to increase capacity of innovation system elements and their impact on regional development

Information and data acquired lead to the conclusion that Vidzeme Planning Region has all the most essential innovation elements, yet the capacity of these elements is insufficient, and there is necessity to increase it. It can be realised by exploiting external and internal resources and available support tools and mechanisms. The hypothesis of the research - increase of capacity of elements of innovation system can have impact on the development of Vidzeme Planning Region – is vindicating, considering

that the region has all the most essential elements, there are possibilities for their exploitation, and there is a possible impact on the region's development. The authors provided an evaluation of anticipated economic impact in a case if two indicators used for measuring innovation and development level (applied by the EU Statistical Bureau and included in the EU Scoreboard report) would change. The indicators are:

1. ***Amount of funding used for research and technological development (RTD) (% from GDP).*** Change of the indicator affects processes ongoing outside VPR (decision of the national government to increase budget for RTD).
2. ***Number of economically active individual merchants and commercial companies per 1000 inhabitants.*** Change of the indicator affects processes ongoing inside and outside VPR (in the region: economic and entrepreneurship activities of inhabitants, availability and quality of support institutions, and other; outside the region: laws supporting entrepreneurship and innovation, supporting tools and mechanisms for starting and developing of innovative business).

Amount of funding used for research and technological development (% from GDP) have a direct impact on the number of applied patents, and applied patents have impact on the number of commercial enterprises potentially to be established and developed. The data from EUROSTAT was used for further research. In the next part of the research, the authors used the calculations and assumptions:

1) assuming that the government of Latvia decides to increase funding for RTD for 1%, the number of patents applied per 1 million inhabitants in Latvia will increase for 98 patents;
2) assuming that there are equivalent preconditions created for development and innovation in all the regions of Latvia, patents are applied evenly, appropriate to the number of inhabitants, thus, 20.8 patents applied can be prognosticated in Vidzeme Planning Region.

The number of economically active individual merchants and commercial companies per 1000 inhabitants is used for prognosis of income of local municipalities. This indicator is significant as municipalities' income adjustment impacts the development of local territories as well as the whole region. The data from the report „Regionu attistība Latvija 2011" was used in the further research. Accordingly, the authors used the following calculations and assumptions:

1) if the number of economically active commercial companies per 1000 inhabitants increases for 1%, the income tax revenues in the budget of regional municipalities will increase for 1.37% on the average;
2) assuming that 20.8 patents will be applied in Vidzeme Planning Region, the establishment of 20 new economically active commercial companies owning productive knowledge can be prognosticated;
3) the establishment of 20 new economically active commercial companies owning productive knowledge will make 0.14% increase in relation to the overall number of region's inhabitants and 0.09% increase in relation to 1000 inhabitants;
4) assuming all the calculations and assumptions, 0.12% increase of income tax (per inhabitant) can be prognosticated;
5) the increase of local municipalities' income will ensure financial resources necessary for measures promoting development.

The obtained results enable the authors to prognosticate positive improvements in the indicators of innovation and regional economic development and confirm the hypothesis.

Conclusions, proposals, recommendations

1. The range of theoretical aspects of nature, elements and systems of innovation is comprehensive and manifold.
2. The most significant elements of innovation system are resources, participants of economic system and their cognition, institutional frame, and informal social environment. The existence and presence of all the mentioned elements is a precondition for innovation. Feasibility, creation and implementation of innovation directly depend on capacity of the elements of innovation system.
3. The capacity of the elements of Vidzeme region innovation system is not sufficient for having a substantial positive impact on innovation and growth of the region. Internal and external intervention is required for strengthening of the capacity of innovation elements.
4. Participants of regional economic system have substantially distinct comprehension about innovation, elements necessary for innovation, their own role, and the role of other participants in innovation processes. Connection and interaction of the governors of resources, the owners of productive knowledge and the institutions promoting and supporting innovation is weak.
5. Insufficient number of producers and users of productive knowledge has negatively affected the development of innovation. The cognition of participants of regional economic system is poor, and possibilities for its development are insufficient. In the region, human potential has not been assessed in the light of innovation.
6. Processes promoting innovation are not coordinated in Vidzeme Planning Region, thus decreasing innovation possibilities in the region.

Recommendations to the Administration of Vidzeme Plannin Region:

1) to elaborate recommendations regarding the directions and priority measures to be included in the next planning period (2014-2020) programmes for promotion and support of innovation in the regions of Latvia and submit them to the Ministry of Environmental Protection and Regional Development, the Ministry of Education and Science, the Ministry of Economy, and to the authorities administrating the European Union funds; .
2) to develop and implement the innovation processes' coordination system in Vidzeme Planning Region;.

3) to establish a regional fund for provision of support to research, technological development and implementation of innovation in micro and small size companies.

Recommendations to the Administration of Vidzeme Planning Regin, local municipalities, institutions supporting the development of entrepreneurship, and innovation:

1) to study and gather data about competencies and productive knowledge of participants of regional economic system, and to identify opportunities and advantages in exploration of the knowledge identified;
2) to realise measures strengthening connection and interaction between governors of resources, owners of productive knowledge, and institutions promoting and supporting innovation;
3) to encourage the networking of participants of Vidzeme regional economic system with networks and institutions established outside Vidzeme Planning Region;
4) to implement measures raising awareness of society about innovation, processes of global economy, and possibilities of Vidzeme Planning Region in the global environment.

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ADAPTATION OF BIOENERGY VILLAGE CONCEPT IN SMALL TOWNS OF LATVIA

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Abstract. Energy policy is a significant component of the European Union (EU) sustainability policy. Along with transnational agreements, which determine the development of energy sector in accordance with the environmental, competition, availability, and supply aspects, local initiatives also exist, including bioenergy villages.
Bioenergy villages are an example of a sustainable policy implementation at the lowest level of administrative territories. The positive aspect of bioenergy villages appears in the support of local public as well as in the positive effect of a bioenergy village on agriculture and the environment. By establishing local residential places that are self-sufficient with bioenergy, sustainable development is stimulated not only at the local, but also national level. The aim of the present paper is to calculate, by means of a simulation model, the amount of resources needed for the establishment and operation of a bioenergy village and its effects on greenhouse gas (GHG) emissions and resource imports.
By developing and exploiting a simulation model for a bioenergy village, which was based on the authors' calculations on economic and environmental effects of biogas production as well as assumptions and calculations regarding the use of biomass and information on the output and consumption of energy in Auce town, it was found that establishing a bioenergy village would have the following positive affects: GHG emissions would decrease by 1 792.7 7 t CO_{2eq} a year, local agriculture would have to supply the necessary biogas substrate – 4 233.3 t of silage and 15 366.7 t of cattle liquid manure, imports of resources (energy and fertilisers) would decline by a value of LVL 199 060.69 a year, and the cost of thermal energy for residents would not change.
Key words: bioenergy village, biogas, biomass, energy self-sufficiency.
JEL code: available on: Q42; R11

Introduction

Presently, the dominant equipment for large-scale energy production may be characterised by high production efficiency and low per-unit cost. At the same time, large production capacity is an equivalent for relatively long distances for the delivery of resources and products (electricity and thermal energy) as well as huge quantities of resources harming the environment (Ayres et al., 2007). Manfred and his colleagues (Manfred et al., 2011) point to a change in the paradigm for establishing energy supply systems. In the future, an essential role will be played by micro-networks, information and communication technologies (virtual energy networks and intelligent power grids) as well as an integrated energy supply system.

Decentralised energy production is local energy production; it is located close to a consumer and it uses local resources. In the case of Latvia, the determinant factors have to be searched for in historical background, especially it relates to the location of a gas pipeline that determined the possibilities of a decentralised energy generation facility for using natural gas for cogeneration (Pelse et al., 2011). However, sustainable energy supply is associated not only with the location of energy production, but also with a more complete use of resources, which would also include waste recycling as well as active support of the public for changes in energy consumption. Actually, local regions, cities, towns, and villages try to enhance the flow of energy by consuming an energy mix characteristic of their potentialities and wishes, which would contain not only primary energy resources of high value (gas, oil, and wood), but also industrial and household wastes. Such a perspective is not new, as it actually reflects Wolman's idea on the metabolism of cities that suggests viewing cities as flows of energy and resources. The sustainable development of a 21st century city is not imaginable without GHG emissions and analyses of energy resources (Kennedy et al., 2011). An idea about the establishment of bioenergy villages is proactive, which actually is the result of developing the city metabolism idea. *Bioenergy villages are populated territories where energy needs are satisfied with local alternative energy biomass resources, thus increasing the economic, environmental, and agricultural sustainability of a local community*.

The research aim is to calculate, by means of a simulation model, the amount of resources needed for the establishment and operation of a bioenergy village and its effects on GHG emissions and resource imports. The research tasks are as follows: 1) to develop a model for energy production in a bioenergy village in order to obtain economic and environmental data for energy production; 2) to assess the gained results by comparing them with the alternative of fossil energy use. The research object is energy supply in Auce town, and the research subject is a possibility to establish a bioenergy village, based on the resources of Auce town.

Research results and discussion

R.Mangoyana and T.Smith (2011), when analysing several bioenergy village models worldwide, found that only one best bioenergy village model does not exist. It is

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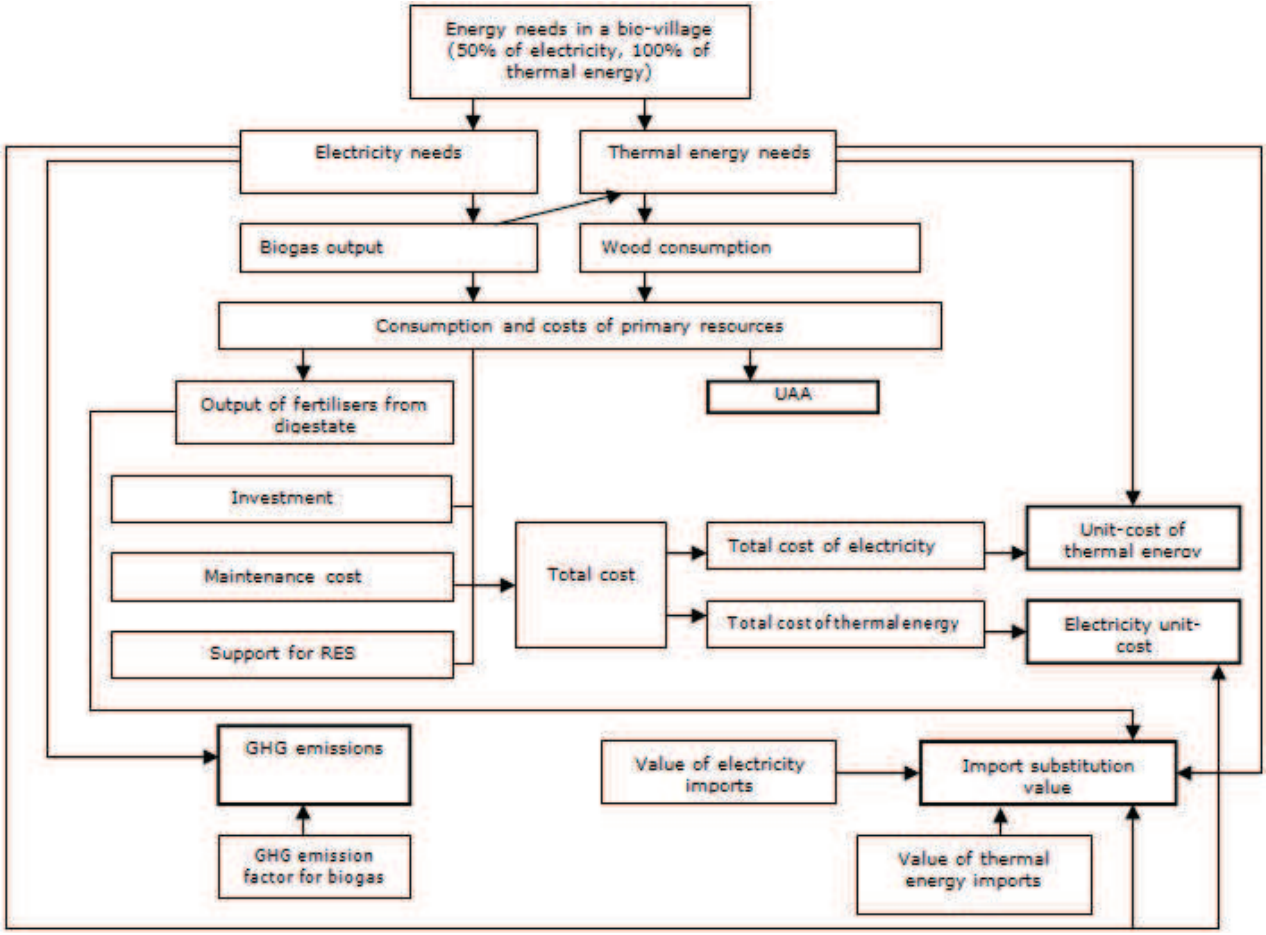

Source: authors' construction

Fig.1. **Block scheme for calculations for the model of energy production in a bioenergy village**

due to different ways of energy production, different uses of products, different kinds of energy sources, different amounts of output, different target groups of consumers as well as different forms of cooperation. Success is based on synergy among support for the consumption of energy resources, financial resources, technological knowledge, national support policies and the readiness of institutions for cooperation, as well as direct gains, mainly economic, and a great role is played by the support and participation of local public. German researchers Andre Wuste and Peter Schmuck (2012) carried out interviews and ascertained the opinions of initiators in 25 bioenergy villages to find out the motives that drove them to establish a bioenergy village. In short, a successful bioenergy model depends on several factors: development prospects for a village or small town, available resources and infrastructure, public support and common regional and environmental government policies.

In the present paper, the authors elaborated a bioenergy village model based on the example of Auce town. Such a choice was made owing to the fact that a biogas cogeneration power plant (capacity of 0.26 MW) is presently operated in Auce. Previously, this town had no natural gas infrastructure; therefore, the town already now partially provides itself with energy from renewable sources. A model for energy production in a bioenergy village contains the following energy production components:

— biogas cogeneration (electricity and thermal energy is produced);
— wood is used to generate thermal energy.

These two components were combined in a single bioenergy village model. To compare the obtain results with the presently dominant energy supply in towns, the authors included also a component of fossil resources:

— fossil energy option.

A bioenergy village, in accordance with the basic prerequisites for establishing a bioenergy village, has to provide itself with half of the electricity and the whole amount of thermal energy consumed by its residents. In Auce town, 3867 people resided (2011 data), consuming annually 6805 MWh of thermal energy and 3765 MWh of electricity.

A block scheme for calculations for the model of energy production in a bioenergy village is presented in Figure 1.

A biogas production facility providing a bio-village with electricity and partially with thermal energy is considered a priority. The remaining amount of thermal energy is supplied by a boiler house running on wood. The necessary amount of energy determines the necessary amount of primary resources that compose

Table 1

Characteristics of the wood exploitation component in the bioenergy model for a small town

Indicator	Kind and amount of primary resources (firewood) m³, (woodchips) bulk m³		Value of fuel resources, LVL	Total cost (including support for investment), LVL, a year	Import energy substitution effect, LVL, a year
	firewood	woodchips			
Total for a bioenergy town	3 367	4 761	78 573.00	138 543.39	117 946.92
Per MWh of thermal energy	0.9896	1.3996	11.55	20.36	17.33

Source: authors' calculations

Table 2

Characteristics of biogas cogeneration in the bioenergy model for a small town

Indicator	Kind and amount of primary resources, t		Total cost (including support for investment), LVL, a year	Necessary UAA, ha, for		Import energy substitution effect, LVL, a year	GHG emissions produced, t CO_{2eq}
	Silage	Liquid manure		Silage	Forage		
Total for a bioenergy town	4 233.3	15 366.7	244 476.00	84.7	683.4	106 822.00	93.5
Per MWh of electricity	2.85	26.08	117.54	0.0407	0.3286	51.36	0.0449

Note: an amount of energy produced from substrates is equal to 1 484 655 kWh for silage and 599 300 kWh for liquid manure

Source: authors' calculations

the component of energy costs. Besides, these primary resources determine the necessary utilised agricultural area (UAA) as well as the amount of fertilisers saved owing to using digestate as a fertiliser in agriculture. The saved amount of fertilisers increases the import substitution value that is affected by the amount of energy generated in a bioenergy village and the value of a unit of imported energy. Total cost is affected by investment and maintenance costs as well as financial support for renewable energy. Based on the exergy method, total cost is divided into the cost of electricity and the cost of thermal energy, which, depending on the amount of energy generated, determines the cost of a unit of energy. GHG emissions are determined by the amount of biogas energy and the GHG emission factor for biogas. GHG emissions caused by burning wood are not included in the calculations, as it is assumed that the use of wood in energy production does not affect the potential of global warming.

Use of wood for generating thermal energy. Thermal energy production, based on using wood, is characterised by full (100%) self-sufficiency with thermal energy in Auce town. Half of the necessary amount of thermal energy is produced from firewood and half from woodchips. Actually, it is a heat supply option that is widespread in small towns and villages of Latvia. Characteristics of the wood exploitation component are presented in Table 1.

According to the data, the proportion of primary resources is quite high. The heat production cost is relatively low – 20.36 LVL/MWh, yet, it has to be taken into consideration that, in this case, additional taxes are not included in the calculations and this cost may not be considered a tariff for consumers. The import substitution value is equal to 17.33 LVL/MWh, i.e. the production of a MWh of thermal energy from wood improves foreign trade balance by LVL 17.33, compared with the situation if this energy is produced from natural gas. The GHG emissions are assumed to be neutral, thus causing no pollution.

Biogas cogeneration. The calculations for biogas exploitation are not orientated towards fully meeting the demand for thermal energy in the small town, but towards the production of electricity. The selected biogas cogeneration power plant exploits maize silage and manure as inputs. As any cogeneration power plant, the biogas cogeneration power plant produces several kinds of energy, in this particular case – electric and thermal energy. Different periods of demand for heat and electricity have to be taken into account. The demand for electricity lasts all year long and changes insignificantly, whereas the demand for heat is explicitly seasonal. It is assumed in the calculations that the main product is electricity, and the operating hours of a cogeneration power plant total 8 000 a year. Characteristics of biogas cogeneration are presented in Table 2.

If comparing the characteristics of the biogas production component (Table 2) with those of wood exploitation for heat production (Table 1), the complexity and capital-intensiveness of biogas production become explicitly apparent.

The total cost of biogas production is much higher if calculated per MWh. Yet, it is important to note that these indicators may not be compared in a direct way because:

Table 3

Comparison of the alternatives for producing bioenergy and fossil energy in the bioenergy model for a small town

Indicators	Unit of measure	Fossil energy option	Bioenergy town
Thermal energy needs	MWh	6804.60	6804.60
Electricity needs	MWh	3765.10	3765.10
Needs for resources	t m^3 ber.m^3	239 695 m^3 of liquefied gas	4233.3 t of silage 15366.7 t of liquid manure 2636.4 m^3 of firewood, 3728.6 bulk m^3 of woodchips
Value of fuel resources	LVL/kWh	0.064	0.021
Thermal energy output	MWh	6 804.60	6 804.60
Electricity output	MWh	0	2 080.0
Thermal energy self-sufficiency, %	%	100	100
Electricity self-sufficiency, %	%	100*	55.2
Investment in equipment	LVL, a year	14 666.67	82 410.00
Maintenance cost	LVL, a year	44 709.69	125 810.39
Substrate cost	LVL, a year	433 847.95	190 458.36
Total cost	LVL, a year	493 224.31	398 678.75
Support for investments	LVL, a year	-	32 964.00
Support for production (electricity)	LVL/kWh	-	0.10 - 0.149
Total cost, including support	LVL, a year	493 224.31	365 714.75
Thermal energy cost	Ls/kWh	0.072	0.030
Electricity cost	Ls/kWh	0.035*	0.076
Amount of emissions produced	t CO_{2eq}	1886.24	93.5
Import substitution value	LVL, a year	-1825.31	199 060.69

*it is assumed that the public producer provides it at a tariff set by the PUC

Source: authors' calculations

1) regardless of energy unit, the amount of energy actually is different, as electricity is a higher level energy;
2) in the summary on biogas production, investment is expressed per MWh of electricity, yet, the thermal energy produced has to be also considered.

The use of heat is not included in the calculations, as these coefficients are employed in determining the effect of establishing a small bioenergy town.

Bioenergy village (a combination of biogas and wood). Based on the prerequisites for a bioenergy village regarding energy self-sufficiency, which require to supply at least half of the electricity and 100% of the thermal energy by exploiting energy generated locally, a combination of biogas and wood that actually meets these prerequisites is found. Biogas production generates additional large gains to ensure agricultural sustainability; therefore, it is used as a basis and is integrated in the bioenergy model for a small town. Owing to a synergy between energy produced from biogas and energy produced from wood, in the calculations, the demand for heat from wood is reduced by the amount of heat produced from biogas. The amount of heat to be produced from wood, in addition to the heat generated at the biogas power plant, is equal to 5325.4 MWh, accounting for 78.3% of the total amount of heat.

Fossil energy option. The authors calculated the option of energy supply from fossil resources, which may be considered a partial alternative, as in this case it is envisaged that the heat supply system will shift to liquefied gas. A large proportion of towns in Latvia have no natural gas pipeline in their region, therefore, the only real alternative for fossil resources is liquefied petroleum gas. The assumption is interesting in relation to the planned construction of a liquefied gas terminal in the Baltic region. In certain periods, liquefied gas would be able to compete quite well with natural gas for heat production. The calculations are important as an intermediate stage for transition to the use of biogas in heat production on the condition that the electricity market price is not able to cover the cost of energy and the public abandons the support policy for biogas production. The duty of the public producer is to supply electricity to households, which are not market participants, at a tariff set by the Public Utilities Commission (PUC) (in the calculations – tariff plan T1 Basic).

The results are presented in Table 3; at the same time, it is compared with the bioenergy village alternative. It has to be taken into consideration that the alternatives are not fully comparable, as there is no single energy amount standard with which the present options may be compared.

After analysing the results (Table 3), one can conclude that the model of energy supply for a bioenergy village is competitive in general. To establish a bioenergy village, two facilities, a boiler house running on wood, and a biogas cogeneration power plant are necessary. Such an option can fully satisfy the demand for heat and supply more than half of the electricity needed, and the basic prerequisites for energy self-sufficiency are met. The production of energy in a bioenergy village is closely integrated with agriculture, as a part of primary energy resources are agricultural products. To meet the need for resources, 4 233.3 t of silage, 15 366.7 t of cattle liquid manure as well as 2 636.4 m^3 of firewood and 3 728.6 bulk m^3 of woodchips are necessary. To produce the silage, an agricultural area of 84.7 ha is necessary, and one can say that, to a certain extent, such an area needs to change its kind of use from food production to energy production. It has to be noted that there are 3179 ha of unfarmed agricultural land in Auce municipality. At the same time, it has to be mentioned that such an area of land provides a more optimal substrate obtained from biogas production and, as a result, the necessary investment is saved. Every year, a small bioenergy town will produce a GHG emission of 93.5 t CO_{2eq}. If compared with the use of liquefied gas in energy production, it is an annual saving of 1792.74 t CO_{2eq}. At the national level, LVL 199 060.69 will be saved, which would otherwise be spent on imported energy resources.

On 18 December 2008, the Regional PUC set a tariff of 41.95 LVL/MWh, VAT excluded, for thermal energy, although in practice the heat supply enterprise used a lower tariff of 37.09 LVL/MWh. (Par SIA Auces….); (Informacija par siltumenergijas ..., 2012). The cost of heat at a bioenergy village is 30 LVL/MWh, excluding heat transportation cost. By assuming that administration and marketing costs contribute to a price increase of approximately 30%, the tariff is 39 LVL/MWh, VAT excluded, for a bioenergy village, which is less than the existing tariff.

An opposite situation is observed for electricity, as its cost in the case of a small bioenergy town is much higher than the average cost for the public producer. The cost of electricity produced at a biogas power plant is equal to 0.072 LVL/kWh without any profit included. The price of electricity sold by the public producer is 0.035 LVL/kWh or more than two times cheaper. Yet, the price of electricity contains some more components, such as electricity transportation and distribution costs, compulsory purchase component cost, electricity marketing cost, and VAT. In a situation, when a bioenergy village wishes to consume locally produced electricity, another price formation mechanism is required, which excludes high voltage services, as they are not consumed; besides, the cost of compulsory purchase component (CPC) should not be included in total cost, as the CPC is actually a compensation for services paid by a bioenergy village directly to the producer. Namely, these services include the construction of new base load capacities, the expansion in the use of renewable sources, and the reduction of GHG emissions. Such an approach could equalise the real prices of fossil and green energy. Presently, electricity is purchased in accordance with the CPC procedure, which covers the cost of electricity at a greater extent than it is needed.

Conclusions

After comparing the model for a bioenergy village with the fossil energy option, one has to conclude that using liquefied gas in heating is expensive and significantly increases the cost of heat as well as increases energy imports. If compared with the alternative option, GHG emissions also increase. The fossil energy option does not affect the economic activity of local residents, and local resources, including agricultural land, are not exploited.

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INTEGRATING EDUCATION INTO NATIONAL ECONOMY IN A BALANCED WAY

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One of the key factors that affect labour productivity and hence national economy is education. On the one hand, education requires financial resources; on the other hand it needs to meet the requirements of national economy. The article presents the results of the researched topic, which will allow a better understanding of what issues in education will make it more corresponding to the changing needs of economy.
Key words: *education, educational system, national economy, self-education, balanced education.*
JEL classification: I29

Introduction

The amount, structure, and quality of the workforce are a precondition for economic growth of a society. One of the main indicators of these preconditions is education - a guarantor of spiritual, social, and economic development of a person.

The role of education in the national economy at the beginning of the last century was highly appreciated. The economic thought put it forward as an independent factor of production. However, this attitude did not sustain as well as the proposal of A. Marshall in 1890 – to consider organization as a productive factor (Marshall, 1993). Therefore, organization and education remained to be viewed as parts of labour as a production factor.

The development and welfare of the society depends on the growth of knowledge, on continuous education, including long-life learning or self education throughout the person's life, on everyday use of information technology and on the mastery of foreign languages. To a large extent, the ability of the society to absorb, accumulate, and apply knowledge determines the well-being of national economy. High-quality and balanced education determines the rating of a state in the world and serves as a driving force of national economic development.

The aim of the article is to identify opportunities that will allow integrating the balanced education in the educational systems of the national economy.

The objectives of the article are:

1) to identify the connection between the level of education and the economy;
2) to determine the necessity and principles of reformation of the educational systems of post-communist countries;
3) to define general principles of regulation and planning of the systems of education in the European Union;
4) to investigate the opportunities of self education.

The connection between the level of education and economy

There have been examples when individuals did not want to study and got recognizable success without substantial education, however these cases do not show the tendency but rather exceptions. Usually, these people recognized the importance of education and developed themselves on their own.

"Education" as a term started to be applied in pedagogy around the middle of the 18th century (Lexikon der Pädagogik, 1972).

The role of education in the labour market is well represented in Table 1.

The study conducted in Germany in 1997 indicates that:

— 84% of university graduates are managers or self-employed businessmen;
— the number of the unemployed persons among the university graduates is the lowest;
— the biggest number of the unemployed persons is among the people without professional education.

A tendency is observed that those who received and developed their professional education at the enterprise mostly connect their further career with "their" enterprise.

Education is directly linked to living standard. The highest living standard is in the countries where almost everybody can read and write (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Great Britain, Island, Italy, Japan, Norway, Sweden, New Zealand, the Netherlands, the USA, etc.) (Schönherr, 1998).

On the contrary, the lowest level of living standard is in such African and Asian countries as Afghanistan, Butane, Mali, Mauritania, Nigeria, and Sudan where only up to 20% of population can read and write (Schönherr, 1998).

The attitude to the level of education is not the same in different countries. Even in such economically developed countries as Germany, Japan, and the USA there are remarkably different approaches to the level of education:

— in the USA, there is the highest level of higher education;
— in Japan, the most attention is paid to solid secondary education in secondary schools;
— in Germany, the most attention is drawn to secondary education (training, certificates, professional education).

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Table 1

The labour force division according to education levels and employment groups (%)

Employment group	Education level		
	without professional education	professional school education or education received at the enterprise	university education
Managers or businessmen	15.0	18.0	84.0
Middle level managers	22.0	56.0	15.0
Ordinary employees and assistants	63.0	26.0	1.0
Total	100.0	100.0	100.0
Unemployed	15.0	4.5	4.1

Source: Stavro, 2013

One gets higher evaluation, i.e. higher marks for better acquired knowledge and skills when studies more consciously in the learning process. This can serve as a basis for a higher salary in the future. Thus, a student of a vocational school, college, or higher school has to make a choice between his/her free time and also consumption today and his/her income and consumption in the future, i.e. after the successful studies. Of course, conscious studies often can ensure the corresponding scholarship that can make studies or learning process easier through the effect on financial side. The Japanese origin students in Canadian universities are a good example of students who intensively use their free time for studies. These universities have one of the shortest study years - only 8 months (Education in Canada), and the Canadians use 4 summer months to work. This is considered the practice time. But the Japanese student groups organize 3 study semesters and with the inherent Japanese insistence in two years finish three-year course with high grades. As a result, the Japanese students faster enter the labour market.

The example of Canada shows that there are opportunities of more effective exploitation of the academic year potential by individual differentiated groups of university students alongside with the necessary amount of practice.

The move to a balanced education

In the 20th century, higher education was expanding. For example, in 1900, there was 1.2% of population with complete higher education in Great Britain, and respectively, in 1954 – 5.8%, in 1962 – 8.5%, in 1981 – 13.5%, in 1993 – already more than 25% (Stiglics, Drifils, 1995), i.e. the number increased more than 20 times. In the countries with developed economies, the number of population with higher education could be similar to that of the UK.

In the interests of national economy, higher education should lead to a higher productivity. However, the tandem "national economy – the level of education" should be balanced. In this connection, the people of the former Federal Republic of Germany acted in a traditionally reasonable way.

Based on the data represented in Table 2, the author calculated the number of 18 year old students who studied in higher education institutions:

— in 1952, from 28.2% higher education was completed by 3.9%;
— in 1962, from 34.9% higher education was completed by 6.5%;
— In 1975, from 58.5% higher education was completed by 14.0%.

The German tendency in the aspect of education is represented in Table 2 and in the author's calculations. The increase in university graduates during this period was 259%. Others received education and qualifications in vocational schools and in equivalent to such schools, trade schools, which since 1975 have been called vocational grammar schools and equivalent to such schools vocational technical schools and engineering schools (HdWW, 1988).

The studies of the system of education of the Federal Republic of Germany and their results by no means allow speaking about a separate German educational system (Education in Germany), which could displace other Western European educational systems. The German system of education is a part of the evaluation system of education of the EU.

As studies show, people in Germany do not particularly strive to obtain higher education, but they rather associate the desired level of education with labour market conditions and their individual abilities. This obviously does not mean that people in Germany are not educated and intelligent. There are different kinds of courses (education of interest (Fisher, 1965) widely popular in Germany. Short and longer educational courses have been known in Western Europe since 1875, when the first University Extension - a British type people's high school was opened in London. Before World War II, the second people's high school of the Danish type functioned in Latvia, too (Latviesu konversacijas vardnica, 2002). People's high schools (or people's universities) have never been granting a diploma of higher education, although certain courses (academic subjects) can be studied even at a quality of the university level.

The experience of Germany shows that the level of education corresponding to the relevant labour market conditions and individual abilities, i.e. the level of education that is balanced with the needs of national economy, provides a high level of development of national economy. Of course, this was not the only factor that contributed to the development of the German economy

Table 2

The share of German secondary school pupils (and of equivalents to such schools) and high school students in the total number of young people

Age group of pupils and students	Educational institution	The share of pupils and students in the total number of youth age group (%)		
		In 1952	In 1962	In 1975
18 year old	Vocational educational institutions	20.2	21.9	34.3
	Industrial schools	1.1	1.5	2.6
	Vocational grammar schools	-	-	2,8
	Professional schools (including engineering schools)	2.0	2.3	3.5
	Grammar schools	4.9	9.2	15.3
22 year old	Engineering high schools, vocational high schools *	1.5	2.4	4.2
	Separate higher schools (including universities)	2.4	4.1	9.8

* This group includes also German *Hochschulen*, which does not provide a complete higher education.

Source: author's construction according to Köhler, 1977

Table 3

Correlation of salaries to the level of education (in %)

Level of education	Salaries in percentage compared to salaries provided by lower level of education
Basic education	100.0
Secondary school education	114.2
Unfinished higher education (1-3 years), higher education	114.8
	137.6

Source: Fisher, 1965

in the post-war period. Nevertheless, it is a factor that should be taken into account.

Basically, by grounding only on the individual assessment, one can not evaluate the impact of education on the national economy as a whole. The fact that individuals with higher education provide higher economic returns at the individual level does not mean the same at the national level. Therefore, when analysing the impact of education on the national economy, it is necessary to analyse the link between education and growth of national economy by way of producing a per capita calculation. It will show the overall efficiency (productivity) of the country more objectively.

The effect of education on the level of the development of the national economy and welfare of the country was also studied by the British scientist A. Sweetman, who has admitted that:

1) it should be taken into account that even though this effect may be small in the short term, it may accumulate in the long run and thus can generate a significant increase;
2) the major problem is how to evaluate education and human capital, i.e. there is still a lack of a unified methodology (Sweetman).

The human capital is a combination of received and accumulated knowledge, expertise, skills and experience, which allows a person who has them being more efficient and productive. Also the opportunity to earn more is a strong motivation for striving for a better education. (The definition is made according to Mankiw (1999) and Becker (1964).)

If Germany was the first that tried to balance education with the needs of national economy pragmatically, now Great Britain has started to pay a lot of attention to the problem. For instance, the Department of Education and Employment of the UK argues that there is a limit as to how many additional graduates the economy can absorb until the productivity gains, which they create, begin to decrease (Student Loans Company).

Moreover, in Germany people do not always try to get the highest scientific degrees. For instance, an authority of European level – *Dr.oec.* Walter Eucken (1891-1950) (Eucken, 1990), next such an authority of European scale is Wilhelm Henrichsmeyer, born in 1935, (Henrichsmeyer, Witzke, 1991) who is *Dr.hab.oec*., followed by such prominent German and EU scientists as *Dr.oec*. Professor Joachim Hentze, born in 1940, (Hentze, 1991) and a free research fellow *Dr.oec.* Peter Brose, born in 1954, (Brose, 1985) as well as many others are successfully working.

A decent way to get a balanced education and improve it is education throughout life or life long learning.

Payment and its relation to the level of education have been researched in the USA, and the results are summarized in Table 3, from which we can conclude that:

— secondary education and unfinished university education give a similar increase in salaries;

Table 4

Proportions among the main study directions in the higher schools (%)

Study courses	Finland - 1993	EU - 2010
Humanities	18.3	27.4
Law and social sciences	22.8	23.2
Mathematics, natural sciences	13.5	16.9
Engineering sciences	20.6	19.0
Medicine	7.2	6.3
Agricultural sciences	2.5	2.2
Arts	2.5	5.0
Teacher training	10.6	0.0
Other	2.0	0.0
Total	*100.0*	*100.0*

Source: Materials of the Ministry of Education and Science, 2011.

— completed higher education gives 2.5 times greater salary increase than the increase provided by the lower level of education.

Although the data presented in Table 3 refer to the first half of the 1960s, the trend that the level of payment depends on the level of education is still valid today and will remain such in the future. There may be some differences in the numerical evaluations.

The research conducted in the USA is also based on the idea that the professional qualifications with university degrees are in constant demand by the labour market.

In some professions, wage/salary differential may be even higher. For example, young IT professionals (Information technology) in Sweden start earning higher salaries immediately after graduation in comparison with representatives of other professions who have worked in their professions for several decades.

From purely professional criteria, higher education levels help to develop analytical abilities, which are very important for a specialist. Employers appreciate that and, when selecting from a range of applicants, assess whether the selected person will be able to implement the company's strategy. For example, one enterprise of "Neste" gas-filling stations network not far from Riga announced a competition for the post of the director of a gas-filling station. Many were surprised that the vacancy was filled in not by a transport specialist - technician, who would be the best from the applicants to manage fuel-related technical problems, but an applicant with higher education and significantly poorer technical knowledge. It turned out that the selected applicant was the best to analyse and define the station development strategy, which was more important to "Neste".

In order to create the prognosis of the labour demand in EU labour market, there was a research conducted in the early 1990s in EU, and the prognosis was worked out up to 2010 (Table 4). The table below shows the corresponding proportions (at the time of the research) in Finland.

The highest percentage of the employed is expected in the consulting, social care, teaching, publishing, organizing and management fields, while the number of people working in the industry and offices will decrease.

From the data represented in Table 4, it can be seen that in the EU about 50% of students majored in humanities, in Finland - about 40%, but in engineer sciences in both countries only about 20%. In Latvia, it would be essentially desirable to increase the number of engineering students, and the number of majoring in other sciences could be less.

The potential of life-long learning

Life long learning integrates well into the system of balanced education, especially organized education.

Life-long learning or education can be realized:

1) in an organized way in the form of above mentioned courses at people's universities and at different courses under the auspices of different higher education institutions, etc.;
2) individually, i.e. not in an organized way, but independently, for which it is necessary to have personal determination, a lot of effort, self-discipline, etc.

Specializations of this kind of education are created by the demand of the labour market that correspond to the interests of the economy. One form of such education is education according to interests, which usually is realized in the form of self-education.

The education according to interests, when it is skilfully, purposefully, and systematically realized, can produce very significant results. These are two examples of famous people of Latvian descent:

— Karlis Irbitis (14.10.1904. – 13.10.1997) – one of the first professional aircraft designers of Europe. He graduated from the State Technical College, which was founded in 1919, with no specialisations related to aviation, then worked at Bakmanis Aircraft Factory in Riga from 1926 to 1930 and later at the State Electromechanic Factory (VEF). From 1925 to 1940, he designed 19 types of aircraft, of which eight working prototypes were taken over by the Soviet authorities to the designing bureau of Andrei Tupolev in 1940 (this bureau has used many of Irbitis's models and ideas). In the period of 1950-1970, he participated in the design of aircraft engines for "Canadair" in Montreal (Locmelis).

— Edward Liedskalninsh *(Edvards Liedskalnins) (*10.08.1887. – 07.12.1951) had only basic school education. E.Liedskalninsh subjected himself to a strict regime – he worked 6 days a week and dedicated some of that time to tourists, and one day a week was devoted to reading books, i.e. to self-education. As a result, he obtained a good knowledge of astronomy, physics, engineering sciences, and history, which he applied for construction of the Coral Castle.

The size of the structure of the castle built by E. Liedskalninsh is compared to the construction of ancient pyramids. Besides that, he invented a power generator, constructed a radio apparatus, and in 1945 published an interesting scientific article on the magnetic flows in a scientific journal (it is believed that he used the magnetic flows for horizontal, and especially vertical movement of heavy stone blocks) (Stavro). In 1984, the Coral castle was included in the national Register of historic monuments of the USA.

These two examples characterize the two goals of self-education.

1. The purpose of self-education coincides with the applied interests of the economy (example of K. Irbitis). Such cases are quite common in the world practice, e.g. Bill Gates, who dropped from Harvard University after the second year of studies and dedicated himself fully to the development of his idea.
2. The purpose of self education may appear as a hobby (example of E. Liedskalninsh) and may not have the short term returns for the national economy. However, there may be long term returns important even for fundamental science. In this case, it is possible that the author may not fully disclose his findings and discoveries. Even the famous Leonardo da Vinci did not reveal all his discoveries to the public.

E. Liedskalnins, K. Irbitis, and B. Gates are autodidacts or self-educators of a higher order. There are also autodidacts of a lower order, nevertheless who were still able to complete their professional qualifications and reach a high level of education through a self study. The author gives some specific examples.

The education of Rudolfs Jukevics, whose family was deported from Latvia to Siberia in 1941, was decided by a KGB captain, the commandant of a local Siberian village. R. Jukevics finished 4 years of a local village primary school. In order to continue education in the 5th year, it was necessary to go to another school 60 km away, and for that the captain's permit was needed. But such permit had never been issued, because the captain decided that it would be better for Rudolf to work. Rudolf was given a permit to train for a tractor operator instead, which he did. R. Jukevics continued his further technical education through the self-study of specialized literature when he returned back to Latvia. The results were very good. He designed many technical innovations and inventions. For example, a log loader on a wheeled tractor base was invented by him in the sixties of the last century. It was the first invention of such kind in the Soviet Union. Surprisingly, he hadn't had even a technical college education!

Conclusions and suggestions

1. Modern economy cannot exist without people that are literate; and to make the economy sufficiently developed, the labour force should be appropriately educated and qualified.
2. The attitude to the level of education is not the same in different countries. Even in such economically developed countries as Germany, Japan, and the USA there are remarkably different approaches to the level of education:
   — in the USA, there is the highest level of higher education;
   — in Japan, the most attention is paid to solid secondary education in secondary schools;
   — in Germany, the most attention is drawn to secondary education (training, certificates, professional education).
3. In Latvia, the system of education complies with the EU requirements and practices, including the mastery of foreign languages.
4. Based only on the individual assessment, one can not evaluate the impact of education on the national economy as a whole. The fact that individuals with higher education produce higher economic returns at the individual level does not mean the same at the national level. Therefore, when analysing the impact of education on the national economy, it is necessary to analyse the link between education and the growth of national economy by way of producing a per capita calculation.
5. Although, in general, it is believed that education is important for both the individual and for the country, nevertheless attention is increasingly being paid to what really is a contribution of education and whether the gains are outweighed by the costs.
6. Life long education is a necessary means of balancing the system of education with the national economy.
7. Self-education may be considered as an essential part of lifelong learning. Therefore, it should receive more attention from the state, in which a system of assessment and recognition of education obtained in the course of self study may be created.
8. If an individual has sufficient quality indicators such as determination, perseverance, self discipline, etc., then such a person has a high potential for targeted self-education, including the mastery of languages as an integral part of education throughout life.
9. Individuals with basic and secondary education or higher education, which corresponds to the requirements of the labour market but does not satisfy their spiritual needs, should be provided with the opportunity to expand their knowledge within the scope of their interests: distantly, or in any other form of self-education. Moreover, at the national level, it would be necessary to create opportunities to have their knowledge recognized and appreciated. In this way, individuals can adapt to the changing requirements of the labour market, and their education may be balanced with the general requirements of the economy.
10. Significant findings and proposals, given the increasing importance of education in the national economy, make it necessary to accept the definition of "education" as a separate factor of production.

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MANAGEMENT DEVELOPMENT CHALLENGES IN SMALL COMPANIES IN THE REGIONS OF LATVIA

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Abstract. Academic research worldwide has proved that it is of great importance to have sustainable companies in the regions to ensure the development of all regions. Statistics has shown that many companies are established in Latvia every year but not all of them are ready for long-term activities as often owners and managers are lacking the necessary skills and knowledge to survive on the market conditions. The authors have researched the importance of different aspects of management of small companies in Latvia and, especially, the attitude of small companies managers towards knowledge, experience, and other aspects related with the company development. The research methods used in the paper include academic publications analysis, statistical data analysis, and a survey of entrepreneurs. A mechanical sampling was applied for the survey to guarantee random sampling and to be able to analyse the data by statistical methods. Descriptive statistics – indicators of central tendency or location and indicators of variability were used for data processing. The analysis of variance and cross tabulations was also used in the research. Empirical research results showed that the evaluations done by small company managers statistically significantly differ by the regions of Latvia.
Key words: management knowledge, management skills, small companies, regions, experience.
JEL code: M1; M12; M50; D20

Introduction

Academic research worldwide has proved that it is of great importance to have sustainable companies in the regions to ensure the development of all regions. Statistics has shown that many companies are established in Latvia every year but not all of them are ready for long-term activities as often owners and managers are lacking the necessary skills and knowledge to survive and develop the company on the market conditions. The authors have researched the importance of different aspects of management of small companies in Latvia and, especially, the attitude of small companies managers towards knowledge, experience, and other aspects related with the company development. The research methods used in the paper include academic publications analysis, statistical data analysis, and a survey of entrepreneurs. A mechanical sampling was applied for the survey to guarantee random sampling and to be able to analyse the data by statistical methods. Descriptive statistics – indicators of central tendency or location and indicators of variability were used for data processing. The analysis of variance and cross tabulations was also used in the research.

Theoretical background

Academic research worldwide has devoted a lot of attention to important factors influencing efficient work of the companies, especially, small and medium size companies and companies located in the regions. Knowledge management is among the most important factors. Darshana Sedera and Guy Gable from Australia have examined knowledge management influence on the company success, suggesting important implications for practice (Sedera et al., 2010). Spanish scientists Carolina Lopez – Nicolas and Pedro Soto-Acosta by examining 300 Spanish small and medium sized companies have evaluated different aspects for knowledge creation and three different orientations: informative, communicative, and workflow (Lopez-Nicolas et al., 2010). Multinational companies arrive at quite different approaches and touch economic, technological, organisational, geographical, and sociological aspects – important emphasis is devoted to knowledge exchange (Ensign et al., 2009). Knowledge management systems go in tandem with fostering efficiency and innovation complementarity; these aspects are analysed by international teams in the United Kingdom, the United States of America, and Singapore (Newell et al., 2003). There is a lot of research devoted to different branches also by Lithuanian scientists (Zavadskas et al., 2011). Innovative technologies are reshaping the global economic landscape by improving speed and ease of communications and interaction among the various economic actors involved in the production cycle (Carayannis et al., 2006). Innovation capacity and innovation development in small companies are of great interest in Finland, since attention is paid to these issues also from technology side (Horsman, 2011). Small companies have never been among the most attractive employers, yet, small companies could be more flexible, more creative, and could undertake more risk. Danish scientists – Ole Henning Sørensen, Peter Hasle and Elsa Bach have researched small enterprises while working in them and examining their special risk by studying reliable databases with the data on work environment and enterprises (Sørensen et al., 2007). Alberto Grandop and Valeria Belvedere in Tialy have evaluated difference

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Table 1

Changes in the number of market sector economically active statistical units by size group in statistical regions in Latvia, comparison of 2010 and 2011

	Total	Micro	Small	Medium	Large
LATVIA	5587	5098	384	81	24
Riga region	2902	2695	184	21	2
Pieriga region	1448	1316	97	27	8
Vidzeme region	213	197	3	14	-1
Kurzeme region	167	129	25	7	6
Zemgale region	255	192	45	12	6
Latgale region	602	569	30	0	3

Source: Central Statistical Bureau of Latvia, 2013

Table 2

Statistical indicators of small company owners, managers' estimation of knowledge significance

Statistical indicators	Value of statistical indicators
Number of respondents	1188
Mean	7.91
Standard Error of Mean	0.06
Median	8.5
Mode	9
Standard Deviation	2.05
Variance	8
Minimum	2
Maximum	10

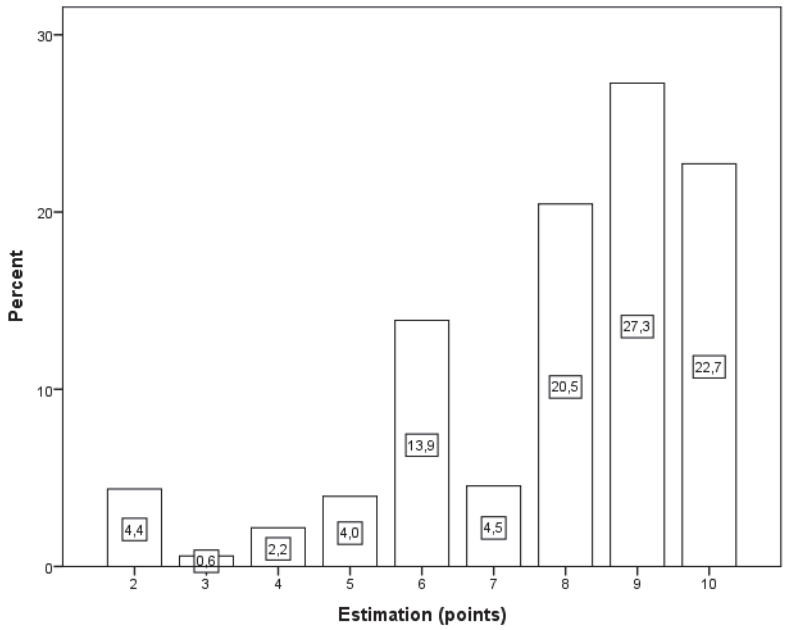
Source: authors' calculations based on the small company owners, managers survey December 2010 - August 2011 (n=1188). Estimation scale 1 – 10 (where 1 – not significant, 10 – very significant)

in the company performance regarding its location by districts: do companies perform better and what are the results of comparisons among large, small – to medium – sized, and district enterprises (Grando et al., 2006). Margaret Fletcher and Simon Harris from the University of Glasgow have found that smaller companies may not have relevant experience in useful networks to perform efficient use of knowledge (Fletcher et al., 2012). Gongming Qian from the Chinese University of Hong Kong has found that small and medium sized companies should consider optimal levels of multinationality and product diversification when they expand product offerings and geographic markets (Qiann, 2002). Swedish scientists Sara Jonsson and Jessica Lindbergh have evaluated the impact of institutional impediments and information, and knowledge exchange on the SMEs' investments in international business relationships and they have tested three hypotheses with the linear structural relations (LISREL) model (Jonsson et al., 2010). Scientists from Finland and the United States of America have researched cooperative strategy, knowledge intensity, and export performance of small and medium sized companies based on two-group simultaneous analysis of 87 Finnish companies and 62 Norwegian companies. The research results have indicated that knowledge intensity has a significant positive impact on the performance measures (Haathi et al., 2005). Factors of the SWOT analysis applied to micro, small to medium and large companies were studied in Austria (Bernroider, 2002). In France, paths to commercial knowledge on forms and consequences of university – enterprise synergy outlined a significant lowering of the boundaries between science and industry and society (Shinn et al., 2006). The studies of experience in other countries have indicated three tiers architecture of knowledge flow and management activities (Kamhawi, 2010) and they have indicated on great challenges as well as possibilities in small companies management.

Research results and discussion

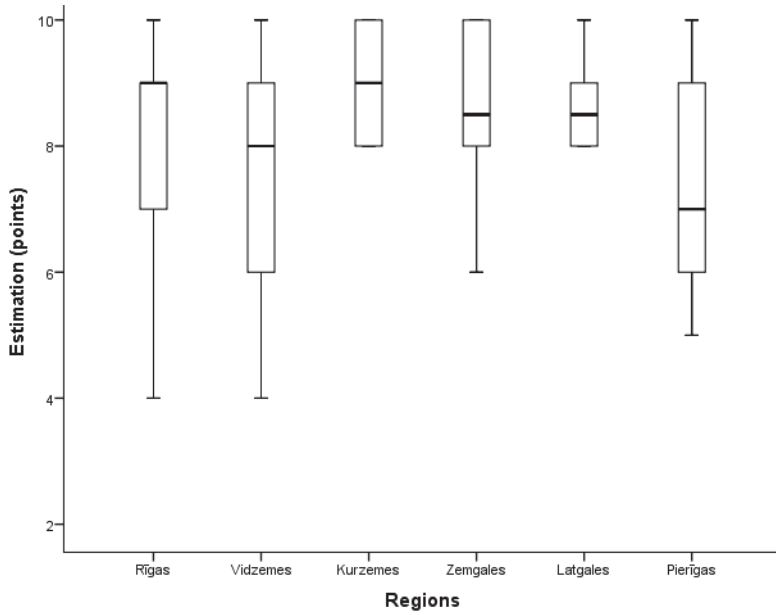
An increase in newly established companies, especially, small companies may be noticed for many years in the Republic of Latvia, for example, the total number of companies has increased by 5587 units in 2011 compared with 2010. The micro and small enterprises have presented the biggest increase (5098 and 384 units, respectively). The distribution of changes in the number of companies by size groups and statistical regions are included in Table 1.

The survey of small company owners - managers was conducted from December 2010 to August 2011.



Source: authors' calculations based on the small company owners, managers survey December 2010 - August 2011 (n=1188). Estimation scale 1 – 10 (where 1 – not significant, 10 – very significant)

Fig. 1. **Small company owners, managers evaluation of knowledge significance**



Source: authors' calculations based on the small company owners, managers survey December 2010 - August 2011 (n=1188). Estimation scale 1 – 10 (where 1 – not significant, 10 – very significant)

Fig. 2. **Small company owners, managers evaluation of knowledge significance by the regions of Latvia**

The survey included 1188 responses received (response rate 21.7%) and the selection method was systematic sample to ensure random responses. The scale 1 – 10 where 1 - not significant and 10 – very significant was used to evaluate managers attitude towards knowledge significance. Several issues were examined in the survey; however, this paper evaluates in more details the attitude of small company managers towards knowledge significance. The main statistical indicators of evaluations are shown in Table 2.

The evaluations of small company managers indicate that the attitude is quite different as there are managers of small companies who do not think that it has an importance at all. The average evaluation of small company managers was 7.91, half of the managers evaluated it

Table 3

Results of analysis of variance for small company owners, managers evaluation of knowledge significance in the regions of Latvia

	Sum of Squares	df	Mean Square	F	Sig.
Between groups	141.038	5	28.208	6.739	0.000
Within groups	4721.591	1128	4.186		
Total	4862.629	1133			

Source: authors' calculations based on the small company owners, managers survey December 2010 - August 2011 (n=1188). Estimation scale 1 – 10 (where 1 – not significant, 10 – very significant)

Table 4

Statistical indicators of small company owners, managers' estimation of experience significance

Statistical indicators	Value of statistical indicators
Number of respondents	1188
Mean	8.95
Standard Error of Mean	0.038
Median	9.5
Mode	10
Standard Deviation	1.478
Variance	6
Minimum	4
Maximum	10

Source: authors' calculations based on the small company owners, managers survey December 2010 - August 2011 (n=1188). Estimation scale 1 – 10 (where 1 – not significant, 10 – very significant)

below 8.5 (median). The biggest share of small company managers gave evaluation 9 (mode, given by 27.3% of managers). There were 4.4% of small companies managers who rated the importance of knowledge only by 2. Distribution of the evaluations done by small company managers on knowledge significance is outlined in Figure 1.

Evaluations done by small company managers of the knowledge importance are different by the regions of Latvia; the results are shown in Figure 2.

The significance of differences in the evaluations done by small companies managers in the regions of Latvia were checked by the variance analysis. The results indicated that the differences in the average evaluations of knowledge importance by small companies managers differed significantly with high probability. The results of variance analysis are shown in Table 3.

Experience is another issue related with the importance of company (especially small company) management. Small company managers in Latvia were asked to evaluate also this aspect. The main statistical indicators of small company managers evaluations related with the importance of experience are shown in Table 4.

The data of Table 4 indicate that the average evaluations of the importance of experience are significant in the views of small company managers, since the average evaluation was 8.95 and the lowest evaluation of small company managers was 4, the majority of managers marked the evaluation 10 (mode). Small company managers who evaluated higher the importance of knowledge are more active on foreign markets, adoption of new technologies, the increase of productivity, the development of new services, and they are more active to support training. The results are shown in Table 5.

The research results indicate that there is still a space for better use of knowledge and experience in small company management.

Conclusions

In 2011, numerous micro companies were established in Latvia, especially, in Riga region and Latgale region. To keep the newly established companies active and successful, it is important to have experience, will and knowledge to manage them. Knowledge is among the most important factors influencing the management of small companies. Company managers in Latvia have differently evaluated the significance of knowledge for the company management: the average evaluation was 7.91 with median 8.5, and mode 9 in the scale from 1 to 10. There were 4.4% of managers who evaluated the significance of knowledge only by 2 (in the evaluation scale 1-10).

Knowledge significance in the evaluations of small company managers differed by the regions of Latvia, the differences were statistically significant with high probability (shown by the variance analysis).

Table 5

Distribution of small companies managers evaluations on different aspects of the company management in relation with their evaluation of knowledge significance

Evaluation of knowledge significance	Evaluation of attitudes on different aspects of the company management						Specific weight (%)
	Foreign market	New technology	Productivity	New products, service	Training	Total	
2	0	0	0	6	0	6	0.45
4	0	0	2	15	0	17	1.28
5	0	12	0	16	1	29	2.19
6	10	22	54	10	6	102	7.70
7	17	38	37	28	5	125	9.43
8	51	54	97	44	71	317	23.92
9	27	81	189	38	42	377	28.45
10	81	74	108	35	54	352	26.57
	186	281	487	192	179	1325	100.00

Source: authors' calculations based on the small company owners, managers survey December 2010 - August 2011 (n=1188). Estimation scale 1 – 10 (where 1 – not significant, 10 – very significant)

Small company managers highly evaluated the significance of experience in small company management. The evaluations were higher than for knowledge significance.

Managers of small companies in Latvia who provided higher evaluations for knowledge significance were more active on foreign markets, acceptance of new technologies, productivity, development of new products and service as well as training.

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