ECONOMIC SCIENCE FOR RURAL DEVELOPMENT

Proceedings of the International Scientific Conference

REGIONAL AND RURAL DEVELOPMENT

№ 18

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№ 18
Jelgava
2009

TIME SCHEDULE OF THE CONFERENCE:

Preparation – September, 2008 – April 20, 2009
Process – April 23-24, 2009

- Latvia University of Agriculture, 2009
- West University of Timisoara, 2009
- Aristotle University of Thessaloniki, 2009
- Technological Educational Institute of Thessaloniki, 2009
- Georgian Subtropical Agricultural State University, 2009
- Batumi Shota Rustaveli State University, 2009
- University of Helsinki, 2009
- Finnish Forest Research Institute, 2009
- Swedish University of Agricultural Science, 2009
- University of Latvia, 2009
- Daugavpils University, 2009
- University of Tartu, 2009
- Estonian University of Life Sciences, 2009
- Siauliai University, 2009
- Lithuanian Institute of Agricultural Economics, 2009
- Warsaw University of Life Sciences, 2009
- Poznan University of Economics, 2009
- Agricultural University of Szczecin, 2009
- Kujawy and Pomorze University in Bydgoszcz, 2009
- University of Zielona Góra, 2009
- Fulda University of Applied Sciences, 2009
- Rēzekne Higher School, 2009
- Research Institute of Agriculture Machinery of Latvia University of Agriculture, 2009
- University of Patras, 2009
- University of Missouri-Columbia, 2009
- BA School of Business and Finance, 2009
- Kuban State University, 2009
- Kurgan State Agricultural Academy, 2009
- Higher School of Economics and Culture, 2009
- Institute of Economics of Latvian Academy of Sciences, 2009
- School of Business Administration "Turība", 2009
- University of Debrecen, 2009
- University of Udine, 2009

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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.

The following **90** reviewers from scientific and academic institutions of **12** countries (Italy, Hungary, Finland, Sweden, Germany, Romania, Belgium, Estonia, Greece, Poland, Georgia, and Latvia) have written 231 reviews.

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Priekšvārds

Latvijas Lauksaimniecības universitātes (LLU) Ekonomikas fakultātē līdz ar ikgadējo, tradicionālo starptautisko zinātnisko konferenci „Ekonomikas zinātne lauku attīstībai" iznāk tajā prezentējamo pētījumu starptautiski recenzētie zinātnieki raksti. **Šogad konference tiek organizēta 10.reizi par godu Ekonomikas fakultātes 40.gadu jubilejai.** Tajā piedalās liels skaits ekonomikas zinātnieku no daudzām Eiropas valstīm. Konference ir veltīta aktuālai lauku attīstības tematikai, tādēļ ir izdoti trīs secīgi laidieni (Nr.18., 19. un 20.). Šādu zinātnisko rakstu pirmais laidiens iznāca 2000.gadā.

2009.gada 23. un 24.aprīļa starptautiskajā zinātniskajā konferencē piedalās un savus zinātniskos pētījumu rezultātus prezentē profesori, zinātņu doktori, asociētie profesori, docētāji, doktoranti un citi pētnieki no šādām augstskolām un zinātniski pētnieciskajām iestādēm:

- Latvijas Lauksaimniecības universitāte
- Timisoara Rietumu Universitāte
- Saloniku Aristoteļa universitāte
- Saloniku tehnoloģiju institūts
- Gruzijas Subtropiskās lauksaimniecības valsts universitāte
- Batumi Shota Rustaveli valsts universitāte
- Helsinku Universitāte
- Somijas meža pētnieciskais institūts
- Zviedrijas Lauksaimniecības zinātņu universitāte
- Latvijas Universitāte
- Daugavpils Universitāte
- Tartu Universitāte
- Igaunijas Dzīvības zinātņu universitāte
- Šauļu Universitāte
- Lietuvas agrārās ekonomikas institūts
- Varšavas Dzīvības zinātņu universitāte
- Poznaņas Ekonomikas universitāte
- Ščecinas Lauksaimniecības universitāte
- Kujawy and Pomorze Bydgoszcz universitāte
- Zielona Góra universitāte
- Fuldas Profesionālā universitāte
- Rēzeknes augstskola
- LLU Lauksaimniecības tehnikas zinātniskais institūts

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 the 10th annual international scientific conference is dedicated to the 40th anniversary of the Faculty of Economics, Latvia University of Agriculture.

Many economic scientists from different European countries participate in the conference. The themes of the conference are very closely connected with the current situation, therefore three volumes of the conference proceedings are published – 18, 19 and 20. The first volumes of scientific conference proceedings were published already in 2000.

This year the international scientific conference on April 23-24 is organised by the Department of Business and Management of the Faculty of Economics, Latvia University of Agriculture. The number of participating universities and scientific institutes increases with every year. Professors, associate professors, assistant professors, PhD students, and other researchers from the following higher education institutions participate in the conference and present their results of scientific researches:

- Latvia University of Agriculture
- West University of Timisoara
- Aristotle University of Thessaloniki
- Technological Educational Institute of Thessaloniki
- Georgian Subtropical Agricultural State University
- Batumi Shota Rustaveli State University
- University of Helsinki
- Finnish Forest Research Institute
- Swedish University of Agricultural Science
- University of Latvia
- Daugavpils University
- University of Tartu
- Estonian University of Life Sciences
- Siauliai University
- Lithuanian Institute of Agricultural Economics
- Warsaw University of Life Sciences
- Poznan University of Economics

- Patras Universitāte
- Missouri-Columbia Universitāte
- Banku augstskola
- Kubanas valsts universitāte
- Kurganas Valsts lauksaimniecības akadēmija
- Ekonomikas un Kultūras augstskola
- Latvijas Zinātņu Akadēmijas Ekonomikas institūts
- Biznesa augstskola „Turība"
- Debrecenas Universitāte
- Udines Universitāte

Konferencei izvēlēti 10 aktuāli temati:

- Ražošanas efektivitāte lauksaimniecības primārajā un sekundārajā sfērā
- Lauku attīstība un globalizācija
- Lauku ekonomiskā un sociālā attīstība
- Finansiālā atbalsta efektivitāte
- Reģionālā lauksaimniecība specializācijas un globalizācijas kontekstos
- Kooperācija un integrācija
- Lauku mentalitāte un kultūras attīstība laukos
- Informācijas loma lauku attīstībā
- Lauku attīstības menedžments
- Dzīves un vides kvalitāte laukos
- Patēriņa izmaiņas lauku attīstībā

Šie temati ietilpst trīs zinātnisko rakstu laidienos.

Starptautiskās zinātniskās konferences zinātniskuma un starptautiskiem standartiem atbilstošu zinātnisko darbu prezentēšanas nodrošināšanai veikta vispusīga iesniegto zinātnisko rakstu starptautiska un starpaugstskolu recenzēšana. Šajā nolūkā lielākā daļa zinātnisko rakstu ir angļu valodā.

Katru iesniegto zinātniskā raksta manuskriptu vērtēja (recenzēja) parasti viens autora valsts recenzents un otrs – citas valsts vai citas augstskolas recenzents. Pretrunīgu recenziju gadījumā darbs tika nodots vēl trešajam recenzentam. Recenzenti darbu autoriem bija anonīmi.

Katram autoram tika nosūtīti recenzentu iebildumi vai ieteikumi. Pēc uzlabotā (galīgā) varianta un autora paskaidrojuma saņemšanas katru zinātnisko rakstu vērtēja šīs konferences zinātnisko rakstu redkolēģija.

- Agricultural University of Szczecin
- Kujawy and Pomorze University in Bydgoszcz
- University of Zielona Góra
- Fulda University of Applied Sciences
- Rēzekne Higher School
- Research Institute of Agriculture Machinery of Latvia University of Agriculture
- University of Patras
- University of Missouri-Columbia
- BA School of Business and Finance
- Kuban State University
- Kurgan State Agricultural Academy
- Higher School of Economics and Culture
- Institute of Economics of Latvian Academy of Sciences
- School of Business Administration "Turība"
- University of Debrecen
- University of Udine

All the proceedings are arranged according to 10 thematic units:

- Efficiency of production in primary and secondary sectors of agriculture
- Rural development and globalisation
- Rural social and economic development
- Efficiency of financial support
- Regional agriculture within the context of specialisation and globalisation
- Co-operation and integration
- Rural mentality and cultural development in rural areas
- Role of information in rural development
- Rural development management
- Quality of life and environment in rural areas
- Consumption changes in rural development

These themes are arranged in three volumes. 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. The majority of 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

Starptautiskās zinātniskās konferences „Ekonomikas zinātne lauku attīstībai" visi zinātniskie raksti sakārtoti trijos tematiskajos laidienos:

Nr.18. Reģionālā un lauku attīstība
Nr.19. Primārais un sekundārais sektors, ražošana, patēriņš
Nr.20. Finanses, nodokļi, investīcijas un atbalsts

Zinātniskajos rakstos izklāstītie pētījumi un to rezultāti kļūst pieejami plašam interesentu lokam Eiropas Savienības telpā.

Rakstu publicēšana pirms konferences sekmēs tās norisi, domu apmaiņu, ekonomikas zinātnieku starptautisko sadarbību. Rakstus varēs izmantot studējošie un visi interesenti.

Konferences zinātnisko rakstu kopsavilkumi angļu valodā tiek izsūtīti starptautiskām datu bāzēm: AGRIS (International Information System for the Agricultural Sciences and Technology) un EBSCO – vienu no lielākajām ASV elektronisko resursu datu bāzēm.

Ceram saņemt atsauksmes un priekšlikumus turpmāko zinātnisko rakstu izdevumu sagatavošanai un starptautisko zinātnisko konferenču rīkošanai.

Pateicamies visiem rakstu autoriem, recenzentiem, programmas komitejai, redkolēģijai un tehniskajam personālam.

Konferences orgkomitejas vārdā
ULDIS IVANS
Latvijas Lauksaimniecības universitātes
Ekonomikas fakultātes asociētais profesors

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 reviewer received manuscripts without the authors' names, while every author received the reviewers' comments and objections.

After receiving the improved (final) version of the manuscript the Editorial Board of the conference evaluated each article.

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

18. Regional and Rural Development;
19. Primary and Secondary Production, Consumption;
20. Finances, Taxes, Investment and Support Systems.

The researches and their results of the conference proceedings are now available to a wide circle of readers in the European Union. The publishing of the proceedings before the conference will also promote exchange of opinions and collaboration of economic scientists on the international level. The proceedings can be used by students and 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) and EBSCO, which is one of the largest electronic resource database in the USA.

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

On behalf of the conference organisers
ULDIS IVANS
Assoc.prof. of the Faculty of Economics, Latvia University of Agriculture

Content

Uzņēmumu maksātnespējas izraisošo ārējo faktoru analīze Latvijā
Analysis of External Factors Causing Insolvency in Latvia

Anita Auziņa, Dr.oec., asoc. prof., LLU EF Uzņēmējdarbības un vadības katedra
Andra Zvirbule-Bērziņa, Dr.oec., asoc. prof., LLU EF Uzņēmējdarbības un vadības katedra

Abstract
The research characterises socio-economic development factors that cause financial crisis (insolvency) of enterprises, and the correlation of these factors. The characteristics of socio-economic factors and the analysis of problems are a significant precondition for ensuring and increasing the effectiveness of business activities as a basic factor of the economy development. At present exactly the social economic factors affect business activities. According to the Lursoft statistics since 1991, in total 10646 insolvency applications have been registered in Latvia, and their number is steadily growing. During the research it was found out that changes in socio-economic factors create a logical chain reaction and correlation of economic regularities and their impact on the financial crisis of businesses is medium close.
Key words: financial crisis of enterprises, insolvency.

Ievads
Introduction

Jebkuras stabilas un progresējošas ekonomiskās attīstības pamatā ir intensīva un efektīva uzņēmējdarbība. Tā nodrošina darba vietas, kas sekmē iedzīvotāju dzīves līmeņa celšanos, sniedz pakalpojumus vai ražo produkciju, veicina investīciju ieplūšanu, nodrošina valsts budžetu ar ieņēmumiem, veicina infrastruktūras sakārtošanu utt. Diemžēl pēdējās desmitgades laikā notikušie ekonomiskie procesi Latvijā nav veicinājuši stabilitāti un nodrošinātību uzņēmējdarbībā. Nepārtrauktas izmaiņas nosacīti brīvajā tirgū, uzņēmējdarbību regulējošās likumdošanas grozījumi ir kavējušas vai pat bremzējušas daudzu nozaru uzņēmumu normālu attīstību, brīžiem radot pat krīzes situācijas.

Sistematizējot un rezumējot teorētisko, statistisko un zinātniski pētniecisko literatūru, iegūtā informācija norāda, ka uzņēmējdarbības krīzes rašanās iemesli un apjomi, tās nodarītie zaudējumi, attīstības pavērsieni ir daudzveidīgi un atšķirīgi. Latvijas ekonomiskajā un mācību literatūrā tās autori (Paupa V., Vaikulis J., Rurāne M., Zelgalve E., Klauss A.), apkopojot no ārzemju literatūras tradicionālās finanšu analīzes metodes, galvenokārt akcentējuši finansiālā stāvokļa un saimnieciskās darbības rezultātu novērtēšanu. Minētie autori pētījuši arī maksātnespējas prognozēšanu, lai to savlaicīgi konstatētu un, pieņemot operatīvus lēmumus, izvairītos no uzņēmuma bankrota. Tomēr mācību un zinātniskās literatūras autori akcentējuši un analizējuši tradicionālākos uzņēmuma finanšu krīzi izraisošos mikrovides cēloņus, to ietekmes rezultātus un iedarbības samazināšanas iespējas. Tas

norāda, ka uzņēmuma krīzes cēloņi meklējami visu uzņēmējdarbības funkciju ietvaros. Krīzes situācijas ir gan globālas un ietekmē konkrētas nozares vai apakšnozares attīstību, gan tās rodas katra atsevišķa uzņēmuma mikrovidē un ietekmē tikai dažus uzņēmējdarbībā iesaistītos subjektus. Statistikas informācijas izpēte liecina, ka uzņēmēji Latvijā, sava uzņēmuma maksātnespējai pamatā norāda divus cēloņus: ekonomisko faktoru nelabvēlīgo ietekmi un finansiālās grūtības. Kā mazāk nozīmīgi cēloņi tiek atzīti: profesionalitātes trūkums, nevērība, stihiskas nelaimes un krāpniecība. Analizējot Latvijas Attīstības aģentūras un Pasaules Bankas pētījumu par uzņēmumu maksātnespējas cēloņiem (Apkopoti aptaujas rezultāti..., 2008.), secināts, ka būtiskākās problēmas ir saistītas ar ārējiem ekonomiskajiem apstākļiem, kas lielā mērā ietekmē uzņēmuma saimniecisko darbību, tai skaitā arī maksātspēju.

Krīzi izraisošie faktori, kuru ietekme ir globāla un skar visu tautsaimniecības nozaru uzņēmumus, ir finanšu krīzi izraisošie ārējie jeb no uzņēmējdarbības neatkarīgie faktori. To klasifikācijas apakšgrupas ir sekojošas:
– *sociāli ekonomiskie attīstības faktori* – faktori, kas negatīvi ietekmē uzņēmuma saimniecisko darbību un rada bankrota draudus – IKP kritums, inflācija, nodokļu sistēmas un likumdošanas nestabilitāte, bezdarba pieaugums, iedzīvotāju ienākuma līmeņa kritums;
– *tirgus faktori* – faktori, kurus izpētot tiek konstatētas uzņēmumam negatīvas tendences tirgus konjunktūras izmaiņās – tirgus ietilpības samazinājums, monopoldraudu parādīšanās tirgū, pieprasījuma kritums, negodīga konkurence;

– *pārējie faktori* – faktori, kurus uzņēmums nosaka atbilstoši savai darbības specializācijai – politiskā nestabilitāte, negatīva demogrāfijas tendence, dabas stihijas u.c. (Rurāne M., 2008.)

Šobrīd tieši sociālekonomiskie attīstības faktori ir izraisījuši rezonansi uzņēmējdarbībā. Sociālekonomisko faktoru raksturojums un problēmu analīze ir būtisks priekšnosacījums uzņēmējdarbības, kā tautsaimniecības attīstības pamatfaktora, nodrošināšanai un efektivitātes palielināšanai. Līdz ar to kā **pētījuma hipotēze** tiek izvirzīta - uzņēmumu maksātnespēju ietekmē uzņēmējdarbības finanšu krīzi izraisošie sociāli ekonomiskie attīstības faktori un to mijiedarbība.

Pētījuma mērķis – noteikt un analizēt uzņēmējdarbības finanšu krīzi izraisošo ārējo faktoru ietekmes ciešuma sakarību uz uzņēmuma maksātnespēju.

Pētījuma hipotēzes pierādīšanai vai noraidīšanai un mērķa sasniegšanai, risināti sekojoši **darba uzdevumi**:
– raksturot uzņēmumu maksātnespējas situāciju Latvijā;
– apzināt un raksturot uzņēmējdarbības finanšu krīzi izraisošos ārējos faktorus Latvijā;
– noteikt uzņēmējdarbības finanšu krīzes izraisošo ārējo faktoru ietekmes ciešuma sakarību uz uzņēmuma maksātnespēju.

Pētījuma izstrādē izmantotas vispārpieņemtas ekonomikas zinātnes **pētījumu metodes**: monogrāfiskā, salīdzinošās analīzes un sintēzes, grafiskās attēlošanas, matemātiski statistiskās metodes.

Par **informācijas bāzi** izmatoti: Centrālās Statistikas pārvaldes un Lursoft dati, speciālā teorētiskā un metodiskā literatūra, zinātnieku publicētie pētījuma rezultāti un laikrakstu publikācijas.

Rezultāti un diskusija
Results and Discussion

1. Uzņēmumu maksātnespējas situācijas raksturojums Latvijā
1. Characteristics of the enterprise insolvency situation in Latvia

Latvijā, līdzīgi kā citās politiskās un ekonomiskās sistēmas maiņas valstīs, pēc neatkarības atgūšanas un tirgus ekonomikas darbības principu ieviešanas daudzās tautsaimniecības attīstībai nozīmīgās nozarēs strauji attīstījās uzņēmējdarbība. To pamato 1.attēlā sakārtotie dati, kur redzams, ka 90-to gadu sākumā dibināto uzņēmumu skaits bijis vislielākais. Īpaši akcentējas 1992.gads, kad tika reģistrēti 37 630 uzņēmumi, no kuriem 50.3% bija zemnieku saimniecības, 34.5% SIA un 9.6%

individuālie uzņēmumi. Kā liecina Lursoft dati, 2008. gadā bez reģistrētiem juridiskiem apgrūtinājumiem (nav likvidēti, nav izbeiguši darbību, nav ierosināta maksātnespēja u.tml.) bija 54% no 1992.gadā reģistrētajiem uzņēmumiem. Līdz 2002. gadam jaunu uzņēmumu dibināšanas tempi katru gadu samazinājās, sasniedzot zemāko skaitu 2002. gadā - 6270. Sākot ar 2004.gadu, kad Latvija iestājās Eiropas Savienībā, līdz 2007.gadam, reģistrēto uzņēmumu skaits pakāpeniski pieauga. 2007.gadā bija sasniegts lielākais jaunreģistrēto uzņēmumu skaits pēdējo 14 gadu laikā, sasniedzot 1991. gada līmeni. Taču 2008. gadā, salīdzinot ar 2007.gadu, par 20.1% samazinājies jaunreģistrēto uzņēmumu skaits.

Vērtējot likvidēto uzņēmumu dinamiku, izteikta pieauguma tendence bijusi 1997.gadā, kad salīdzinot ar 1996.gada datiem, likvidēto uzņēmumu skaits pieauga par 7985 vienībām jeb 77.8%. Līdzīga situācija iezīmējas arī 2007.gadā (skat. 1.attēlu).

Lai gan 2007. gadā tika nodibinātas visvairāk komercsabiedrības pēdējo gadu laikā, arī likvidēto vienību skaits ir vislielākais. Šeit jāņem vērā apstāklis, ka ar 2007. gadu tika veikta komercreformas rezultātā nepārreģistrējušos uzņēmumu likvidācija - no reģistra tika izslēgti 4766 uzņēmumi. Rezultātā, likvidēto uzņēmumu skaits 2007. gadā, salīdzinot ar 2006.gadu, ir pieaudzis par 70.7% Jāpiebilst, ka nedarbojošos uzņēmumu likvidācija būtu jāturpina, jo ļoti daudzi uzņēmumi darbību neveic, tajā pašā laikā tiek izmantoti fiktīvās darbībās, pat darbību neveicot, tiem tiek uzkrāti neesoši nodokļu parādi, kā rezultātā tas ietekmē gan valsts un privātās datu bāzēs ievietoto informāciju, gan statistiku objektivitāti.

Taču kā daudzu uzņēmumu darbības izbeigšanas iemesls tiek norādīts ilgstošs naudas trūkums, kā dēļ uzņēmumi nav spējīgi veikt atražošanu un rodas krīzes situācijas draudi, kas noved pie uzņēmuma maksātnespējas. Par uzņēmuma krīzi liecina neto apgrozījuma samazināšanās, peļņas sarukšana un izzušana, ilgstoši zaudējumi, pašu kapitāla un maksātspējas samazināšanās, parādu pieaugšana u.c. faktori. Ja uzņēmums nespēj šo situāciju kontrolēt un novērst, tam jāuzsāk maksātnespējas process. Sākotnējo informāciju par kritiskā finansiālā situācijā nonākušiem uzņēmumiem var iegūt no LR Uzņēmuma reģistra datiem. Pēc Lursoft statistikas datiem, kopumā Latvijā kopš 1991. gada reģistrēti 10646 maksātnespējas lietu pieteikumi. Analizējot ar uzņēmumu maksātnespēju saistīto statistisko informāciju laika periodā no 1991. – 2008.gadam, 2.attēlā redzams, ka situācija ir mainīga.

Šo 18 gadu periodu nosacīti varētu iedalīt divos posmos. 1. posms – no 1991. līdz 2003.gadam, kad maksātnespēju pieteikumu skaits Latvijā ar katru gadu pieauga. Krasākie pieaugumi bija 1997.gadā, kad, salīdzinot ar 1996.gadu, maksātnespēju pieteikumu
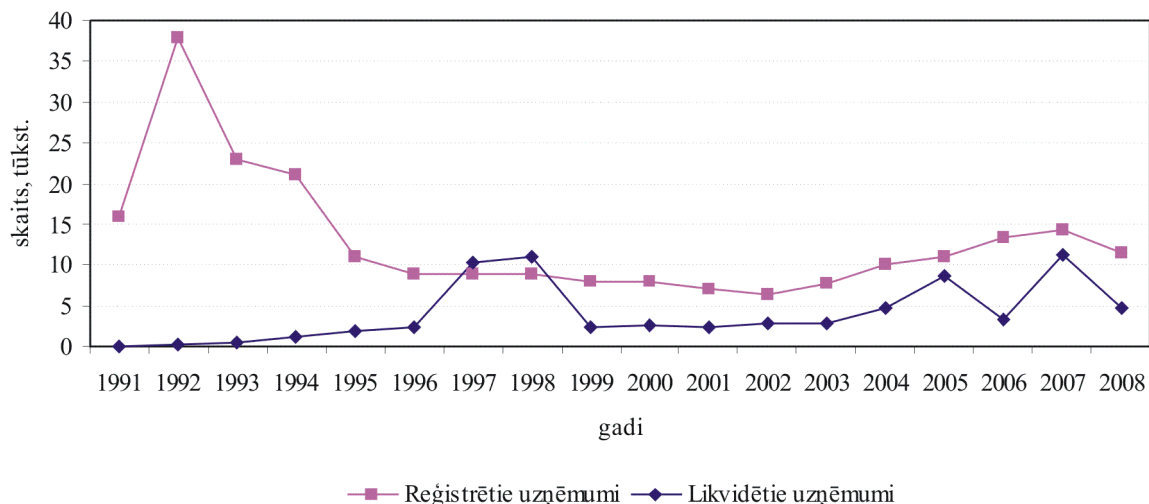
Avots: autoru veidots pēc Lursoft statistikas datiem
Source: made by the authors according to the Lursoft statistics

1. att. Reģistrēto un likvidēto uzņēmumu skaits Latvijā 1991. – 2008.gadam
Fig. 1. **The number of registered and liquidated enterprises in Latvia in 1991 – 2008**
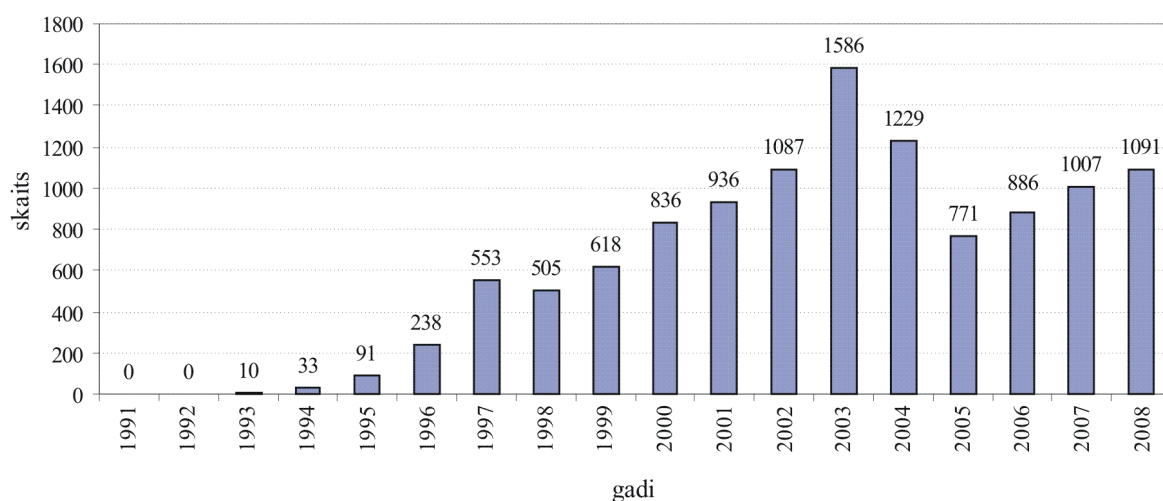
Avots: autoru veidots pēc Lursoft statistikas datiem
Source: made by the authors according to the Lursoft statistics

2. att. Maksātnespēju pieteikumu skaits Latvijā 1991. – 2008.gadam
Fig. 2. The number of insolvency applications in Latvia in 1991 – 2008

skaits palielinājās par 132%, un 2003.gadā, salīdzinot ar 2002.gadu, pieaugums bija par 499 pieteikumiem jeb 46%. 2003.gads akcentējas kā gads ar vislielāko pieteikumu skaitu, t.i., 1586 pieteikumi jeb 15% no visiem maksātnespēju pieteikumiem laika periodā no 1991. – 2008.gadam. 2.posms (2004.-2008.g.) iezīmējās ar mainīgu dinamiku. Salīdzinot 2004. gada datus ar 2005.gadu, redzams maksātnespēju pieteikumu skaita samazinājums, t.i., par 458 pieteikumiem jeb 37%. Taču ar 2006.gadu atkal vērojams vienmērīgs pieteikumu skaita pieaugums,

vidēji 10% gadā. Savukārt, 2008.gada pieteikumu skaita pieaugums, salīdzinot ar 2005.gadu, ir par 320 vienībām jeb 41.5 %.

Neveiksmīgas uzņēmējdarbības kritiskā robeža ir uzņēmuma darbības apturēšana un likvidācija. Laika periodā no 1991.-2008.gadam no Uzņēmuma reģistrā reģistrētajiem maksātnespējas procesiem 83% ir pabeigti. Analizējot maksātnespēju procesu iznākumu statistisku, var secināt, ka 91% no maksātnespējīgiem uzņēmumiem savu saimniecisko darbību pārtrauc un tiek likvidēti, piemērojot bankrota procedūru.

Tikai 1% (t.i. 98 uzņēmumi) no uzņēmumiem spējuši atjaunot ekonomisko stabilitāti, nodrošinot finansiālās darbības pozitīvus rezultātus, un turpināt saimniecisko darbību. No tiem 14 uzņēmumiem ir pabeigts sanācijas process, 60 uzņēmumi ir nokārtojuši visas savas saistības, bet 24 uzņēmumi ir nokārtojuši saistības un to aktīvi pārsniedz atlikušo parādu summu.

2. Maksātnespējas izraisošo ārējo faktoru raksturojums Latvijā
2. Characteristics of external factors causing insolvency in Latvia

Bankrota cēloņu un maksātnespējīgo uzņēmumu zinātniskās pētniecības aģentūras Dun&Bradstreet pētījumi liecina, ka 47.4% gadījumu uzņēmuma maksātnespējas pamatā ir ekonomisko faktoru nelabvēlīgā ietekme (Šneidere R., 2009.). Līdz ar to kā ārējie (ekonomiskie) faktori, kas negatīvi ietekmē uzņēmuma saimniecisko darbību un rada bankrota draudus, šajā pētījumā tiks analizēti – IKP, inflācija, bezdarbs, iedzīvotāju ienākuma līmenis.

IKP ir pievienotā vērtība no ekonomiskās darbības, ko noteiktā laika periodā ir radījušas visas tautsaimniecības nozares. Tas liecina par valsts attīstības materiālo līmeni. Latvijā, laikā no 1990.-1995.gadam, IKP samazinājās divas reizes. Vairākus gadus (1995.-2007.) IKP dinamika Latvijā liecināja par ekonomisko izaugsmi. Laika periodā no 1995.gada līdz 2007.gadam IKP salīdzināmās

cenās ir palielinājies par 81.4%, jeb vidēji gadā par 6.8%. Tomēr izaugsme nav bijusi vienmērīga. Piemēram, 1998.-1999.gada izaugsmes tempi bija minimāli, jo Krievijas finansiālās krīzes ietekmē samazinājās ārējais pieprasījums un tā rezultātā daudzi Latvijas uzņēmumi bija spiesti pārtraukt vai ierobežot ražošanu, un tas negatīvi ietekmēja gan katra atsevišķa uzņēmuma saimniecisko darbību, gan Latvijas eksportu kopumā. Savukārt 2008.gads, pirmo reizi kopš 1995.gada, iezīmējas ar reālu IKP kritumu, kas norāda uz tautsaimniecības izaugsmes tempa palēnināšanos. Nepilnu divu gadu laikā IKP Latvijā no augšupejošiem 11.2% ir sarucis līdz 4.2%. Eksperti notiekošo raksturo kā strauju pāreju no ekonomikas modeļa, kas balstījās uz parādu veidojoša patēriņa un nekustamā īpašumu tirgus bumu, uz ilgtspējīgu un konkurētspējīgu tautsaimniecību. Tomēr pāreju uz ilgtermiņa ekonomiku traucē globālā finanšu krīze, kas palielina ekonomiskos riskus (IKP kritums iezīmē pāreju...., 2008.). Līdz ar to kopējais patēriņš un pieprasījums valstī krītas, samazinot gan tirdzniecības, gan ražošanas nozaru darbības apjomus. Tā rezultātā uzņēmumos samazinās neto apgrozījums, peļņa un rodas zaudējumi, samazinās pašu kapitāls un maksātspēja, pieaug parādi, kas pakārtoti rada finanšu krīzes situāciju un noved uzņēmumu pie maksātnespējas.

Inflācija Latvijā 1999. - 2003.gadu periodā bija viena no zemākajām (2 – 3% robežās) starp pārejas ekonomikas valstīm. Kā redzams pēc sakārtotās informācijas 1.tabulā, laika posmā no 1995. gada, kad

1.tabula / Table 1

Patēriņa cenu inflācija Latvijā 1995. –2008.g., %
Inflation of consumer prices in Latvia in 1995 –2008, %

Gads Year	Patēriņa cenu inflācija Inflation of consumer prices	Ķēdes pieauguma temps,% Chain increase rate, %
1995	25.0	-
1996	17.6	-29.6
1997	8.4	-52.3
1998	4.7	-44.0
1999	2.4	-48.9
2000	2.6	8.3
2001	2.5	-3.85
2002	1.9	-24.0
2003	2.9	52.6
2004	6.2	113.8
2005	6.7	8.1
2006	6.5	-2.98
2007	10.1	55.4
2008	15.4	52.5

Avots: autoru aprēķini pēc CSP 1995.-2008.gada datiem
Source: authors' calculations according to the CSB data from 1995 to 2008

inflācija bija 25%, 2003.gadā tā samazinājās par 22.1 procentpunktu, tas ir 2.9%. Šo cenu samazināšanos noteica iekšējās un ārvalstu konkurences pieaugums. Iekšējā konkurence veidojās, uzņēmumiem tiecoties iekarot tirgus segmentu. Ārvalstu konkurenci pastiprināja pasaules valūtas kursu pārmaiņas. 2002. gadā bija zemākā inflācija (1.9%) kopš neatkarības atgūšanas. Cenu kāpumu šajā gadā galvenokārt noteica nepārtikas preču cenu palielinājums. Pieaugot darba ražīgumam un ienākumu līmenim, 2003. gadā, salīdzinot ar iepriekšējo gadu, inflācijas ķēdes pieauguma temps sasniedza 52.6% robežas, kas norāda, ka inflācija palielinājās par 1 procentpunktu. Līdz ar eiro kursa strauju kāpumu 2003.gadā sadārdzinājās arī importa preces, kas būtiski ietekmēja gada inflāciju Latvijā.

Pēc aprēķinātā ķēdes pieauguma tempa redzams, ka sākot ar 2004.gadu, inflācijas līmenis Latvijā ar katru gadu palielinājās. Straujo inflācijas līmeņa pieaugumu (113.8%) 2004.gadā pamatā izraisīja vairāku efektu kombinācija (administratīvi regulējamo cenu kāpums, netiešo nodokļu harmonizācija, ar iestāšanos ES saistītās inflācijas gaidas, pasaules augstās naftas cenas). Šajā perioda laikā vislielāko iespaidu uz uzņēmēju saimniecisko darbību un izmaksām atstāja tarifu kāpums elektroenerģijai, gāzei, tvaika un karstā ūdens apgādei, kā arī degvielai. Tas radīja ražotāju cenu kopējā līmeņa strauju kāpumu, pakārtoti palielinot patēriņa cenu līmeni. 2005. un 2006.gadā inflācija saglabājās augstā līmenī galvenokārt pasaules degvielas cenu kāpuma un inflācijas inerces dēļ, ko stimulēja iepriekšējo gadu darba algu palielinājums un augstie kreditēšanas pieauguma tempi. 2007.gadā inflācijas pieaugums pret 2006.gadu bija 55.4%, ko izraisīja būtisks administratīvi regulējamo cenu kāpums un akcīzes nodokļa likmju celšana atsevišķām precēm. 2008.gadā inflācija sasniedza savu maksimumu, gada vidējā inflācija bija 15.4%.

Likumsakarīgas mijiedarbības rezultātā, pieaugošais cenu līmenis ietekmē ne tikai katra uzņēmuma saimnieciskās darbības aktivitāti, ražošanas izmaksas un maksātspēju, bet nosaka arī **iedzīvotāju ienākumu līmeni** un pirktspēju. Oficiālā statistikas informācija liecina, ka iedzīvotāju ienākumu līmenis ar katru gadu pieaug. Ja 1995. gadā iedzīvotāju ienākumi, rēķinot vidēji uz vienu mājsaimniecības locekli mēnesī, bija Ls 73, tad 2005. gadā tie sasniedza Ls 176, kas ir par 141% vairāk. Savukārt 2007.gadā šie ienākumi, salīdzinot ar 2005. gadu, ir pieauguši par 110 latiem jeb 61.5%. Taču iedzīvotāju pirktspēja ir samazinājusies, palielinoties cenām stratēģiski svarīgām un nepieciešamām precēm un pakalpojumiem. Šis faktors izsauc tālāko ķēdes reakciju, kad samazinās pieprasījums pēc uzņēmumu ražotajām precēm un pakalpojumiem,

strauji samazinās ienākumu apmērs, kas neizbēgami rada uzņēmumiem asas konkurences apstākļus. Kā saimnieciskās darbības kopējo izmaksu samazināšanas variantu vairākums uzņēmēji ir spiesti pielietot darba izmaksu samazināšanu un atbrīvot darbiniekus. Tā rezultātā palielinās bezdarbnieku skaits.

Bezdarba līmenis Latvijā no 1995. līdz 2007. gadam samazinājās. Ja 1995.gadā bezdarba līmenis Latvijā bija 14.4%, tad 2007.gadā tas ir samazinājies par 8.4 procentpunktiem. Straujā ekonomiskā izaugsme veicināja jaunu darba vietu izveidošanu. Taču mainoties ekonomiskai situācijai valstī, pieaugot finansiālās grūtībās nonākušo uzņēmumu skaitam un valdības „pretkrīzes" pasākumiem, 2008.gadā, salīdzinot ar 2007.gadu, bezdarba līmenis pieaudzis par 2%. Arī globālās ekonomikas problēmas ir atstājušas savu ietekmi uz bezdarba pieaugumu Latvijā. Darbiniekus atlaiž ne vien vietējie uzņēmumi un valsts iestādes, bet arī Latvijā strādājošās ārvalstu kompānijas.

Šeit turpinās ekonomisko likumsakarību ķēdes reakcija-bezdarbnieka statusā esošajiem iedzīvotājiem būtiski samazinās ienākumi un viņu maksātspēja, tas rada pieprasījuma samazināšanos visos tirgus veidos. Līdz ar to samazinās ne tikai uzņēmumu ienākumi, bet arī valsts budžetā tiešo un netiešo nodokļu maksājumi. Samazinās ražošanas un pakalpojumu sniegšanas apjomi un to radītā pievienotā vērtība, pakārtoti samazinās valsts iekšzemes kopprodukta pieaugums, kas tālāk, savstarpēji mijiedarbojoties, izsauc pārējo ekonomisko procesu sistēmas elementu izmaiņas un dinamikas reakcijas.

3. Uzņēmējdarbības finanšu krīzes izraisošo ārējo faktoru ietekmes ciešuma sakarība uz uzņēmuma maksātnespēju
3. Correlation of external factors causing the financial crisis of business activities and company insolvency

Pētījuma mērķa sasniegšanai un uzdevuma risināšanai tika veikta korelācijas analīze, lai noskaidrotu sakarības ciešumu starp rezultatīvo un faktoriālo pazīmi. Hipotētiski pieņemot, ka uzņēmumu maksātnespēju ietekmē uzņēmējdarbības finanšu krīzi izraisošie sociāli ekonomiskie faktori un to mijiedarbība, tad uzņēmumu maksātnespēju skaita dinamika tiks analizēta divos aspektos:
– kā *faktoriālā* pazīme, kas nosaka rezultatīvās pazīmes - likvidēto uzņēmumu skaita – variēšanu;
– kā *rezultatīvā* pazīme, kuras skaitliskās vērtības variēšana tiks pētīta no citu (faktoriālo) pazīmju - IKP, inflācijas, iedzīvotāju ienākuma un bezdarba līmeņa izmaiņu vērtībām.

Uzņēmējdarbības finanšu krīzes izraisošo ārējo faktoru ietekmes ciešuma sakarība uz uzņēmuma maksātnespēju Latvijā 1995. – 2008.g.

Correlation of external factors causing the financial crisis of business activities and company insolvency in Latvia in 1995 – 2008

Rādītājs / Indicator	Korelācijas koeficients *r* / Correlation coefficient *r*
Iekšzemes kopprodukts (IKP) Gross domestic product (GDP)	-0.516
Inflācija Inflation	0.693
Iedzīvotāju ienākumi Ppulation income	- 0.528
Bezdarbs Unemployment	- 0.394

Avots: autoru aprēķini pēc CSP un Lursoft 1995.-2008.gada datiem

Source: authors' calculations according to the CSB and Lursoft data from 1995 to 2008

Veicot sakarību aprēķinus par datu bāzi izmantoti CSP un Lursoft grupēti dati un korelācijas diagrammā ir 14 punkti.

Korelācijas aprēķinos, uzņēmumu *maksātnespēju nosakot kā faktoriālo* pazīmi, iegūtais rezultāts *r=0.81,* norāda uz ciešu pozitīvu korelatīvu sakarību starp pazīmēm un pamato, ka viens no biežākajiem uzņēmumu maksātnespējas procesu risinājumiem ir to likvidācija.

Pētot *maksātnespēju kā rezultatīvo* pazīmi, iegūto aprēķinu rezultāti sakārtoti 2.tabulā.

Iegūtos un 2.tabulā sakārtotos korelācijas koeficientus var interpretēt:
– **vidēji cieša sakarība**, kas ietekmē uzņēmējdarbības finanšu krīzi, ir valstī esošais *inflācijas* līmenis. Palielinoties cenu līmenim, pieaug ražošanas izmaksas, kā rezultātā rodas finansiālās grūtības, kas uzņēmumu var novest līdz maksātnespējai;
– **vidēji cieša, bet negatīva sakarība** ir ar *iekšzemes kopproduktu un iedzīvotāju ienākuma līmeni.* Šiem faktoriem palielinoties jeb uzlabojoties, uzņēmumu skaits, kuros ir finansiāla krīze, samazinās. Šo pāru korelāciju var interpretēt arī proporcionāli pretēji, t.i., ja tiek veikta veiksmīga uzņēmējdarbība, radīta jauna pievienotā vērtība un maksātnespējīgo uzņēmumu skaits samazinās, tad ekonomiski loģisks rezultāts ir IKP un iedzīvotāju ienākumu pieaugums;
– **vāja proporcionāli apgriezta sakarība** ir ar *bezdarba līmeni.* Pēc matemātiskiem aprēķiniem, palielinoties bezdarba līmenim, maksātnespēju skaits samazinās. Šī sakarība liecina par to, ka, palielinoties bezdarbnieku skaitam, uzņēmējiem ir plašāka iespēja piesaistīt lētāku

darbaspēku, tā samazinot ražošanas izmaksas. Taču šī sakarība ir vāja, kas ļauj secināt, ka maksātnespējas, kā rezultatīvās pazīmes, izmaiņas nosaka un mijietekmē vēl citi savstarpēji faktori.

Secinājumi
Conclusions

1. Situāciju, kad ilgstošā laika periodā uzņēmumam ir nepietiekami naudas resursi, apzīmē ar finansiālo krīzi, kā iespaidā parādās maksātnespējas draudi, kas var izraisīt uzņēmuma bankrotu.

2. Uzņēmēji Latvijā sava uzņēmuma maksātnespējai pamatā norāda divus cēloņus: ekonomisko faktoru nelabvēlīgo ietekmi un finansiālās grūtības.

3. Laika periodā no 1991. līdz 2008.gadam Latvijā reģistrēti 10646 maksātnespējas lietu pieteikumi. Šo 18 gadu periodu nosacīti varētu iedalīt divos posmos. 1. posms – no 1991. līdz 2003.gadam, kad maksātnespēju pieteikumu skaits Latvijā ar katru gadu pieauga. 2.posms (2004.-2008.g.) iezīmējās ar mainīgu, bet pieaugošu tendenci.

4. No 1991.-2008.gadam Uzņēmuma reģistrā reģistrētajiem maksātnespējas procesiem 83% ir pabeigti. No tiem 91% savu saimniecisko darbību pārtrauc un tiek likvidēti, piemērojot bankrota procedūru. To pamato ciešā korelatīvā sakarība (r=0.81).

5. Sociālekonomisko faktoru izmaiņas veido loģisku ekonomisko likumsakarību ķēdes reakciju un mijiedarbību un to ietekme uz uzņēmējdarbības finansiālo krīzi ir vidēji cieša.

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Kopsavilkums

Pētījumā raksturoti uzņēmējdarbības finanšu krīzes (maksātnespējas) izraisošie sociāli ekonomiskie attīstības faktori un to mijiedarbība. Sociālekonomisko faktoru raksturojums un problēmu analīze ir būtisks priekšnosacījums uzņēmējdarbības, kā tautsaimniecības attīstības pamatfaktora, nodrošināšanai un efektivitātes palielināšanai. Šobrīd tieši sociālekonomiskie attīstības faktori ir izraisījuši rezonansi uzņēmējdarbībā. Pēc Lursoft statistikas datiem, kopumā Latvijā kopš 1991. gada reģistrēti 10646 maksātnespējas lietu pieteikumi un to skaita dinamika ir pakāpeniski augoša. Pētījumā noskaidrots, ka sociālekonomisko faktoru izmaiņas veido loģisku ekonomisko likumsakarību ķēdes reakciju un mijiedarbību, un to ietekme uz uzņēmējdarbības finansiālo krīzi ir vidēji cieša.

Atslēgas vārdi : uzņēmuma finanšu krīze, maksātnespēja.

Theoretical, Historical and Economic Pre-requisites of Protectionism in Agriculture

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Abstract

Agriculture has a specific role in the economy any country. At the early stages of economic development, in many countries the situation has been unfavourable for agriculture resulting in application of protection instruments in some countries. Instruments of protectionism are characterised by multiple forms, and there are different ways to classify them. The type and role of instruments of protection has also undergone changes in the upgrading process of economy. Within the negotiation rounds of the World Trade Organization (WTO), countries strive to achieve agreement on reduction of the protection level. Funds collected from tax-payers or consumers and disbursed to farmers by far not always fulfil their purpose, i.e., increase of farmers' net income. Support measures are in a number of cases ineffective and may even exercise a distorting influence both, on the sector and the economy as the whole. Therefore it is always vital to establish clear goals for every policy area in agricultural policy.
Key words: protectionism, agriculture, support payments.

Introduction

The problems of agricultural policy take their roots in the history of development of this area of production and are connected with the specific place it occupies in national economies. In early stages of economic development, despite low productivity, agriculture gave a massive contribution to national income. The technological progress of production accompanying the economic development allowed the increase of labour productivity at the same time promoting migration of population employed in agriculture to non-agricultural sectors. Reallocation of resources from agriculture to manufacturing industry is one of the underlying characteristics of a growing economy (Mcconnell, Brue, 1993, Tracy, 1996).

Scholars of agricultural economy (Mcconnell, Brue, 1993, Tracy, 1996, Grinovskis, 1996, Špoģis, 1999, Reiljan, Tamm, 2008) have summed up the main market economy problems. The majority of them are related to market of agricultural goods as a model of free competition and the dependence of the sector on natural resources and the climatic conditions. Account should be taken also of the specific use of labour, as an agricultural holding is workplace and home at the same time, and agricultural occupation may be characterised as the way of life.

Agriculture as a sector of the national economy has a specific role in ensuring its successful function, as agriculture and forestry are the only sectors generating organic matter and accumulating the solar energy in it. It has a unique strategic meaning in production of food for human consumption; it supplies raw materials to a number of different sectors and consumes products manufactured by other sectors. Agriculture has a considerable impact on positive external balance, especially in countries importing resources. Agricultural and forestry environment is also the living and recreation environment for people (Špoģis, 1999, Grinovskis, 1996, Libermanis, 2006).

The **aim** of the present study: analysis of the historical development and the applied instruments of protection evaluating their economic nature. The following **hypothesis** was set forth: there are multiform instruments of agricultural protectionism and they exercise a varied impact on the development of agricultural sector.

The fulfilment of the following **tasks** was identified as relevant for the attainment of the above aim:

1) to analyse theoretical aspects of protection measures and classification of instruments applied in implementation of the protection policy;
2) to analyse historical development of agrarian protection;
3) to identify the role of international organisations in restriction of agricultural protection policy;
4) to provide economic evaluation of the protection measures.

The **methods** of analysis, synthesis and logical construction as well as scientific discussion were applied for fulfilment of the above tasks.

Sources by different authors (Mcconnell, Brue, 1993, Grinovskis E., 1996, Tracy M., 1996, Fischer

etc., 1999, Oļevskis 2000, Pilvere I. 2001, Ash, 2005, Libermanis, 2006, Reiljan J., Tamm D., 2008, Anderson K., Swinnen J., 2008, Torgeren F., 2008, Martin W., Mattoo A., 2008) and research papers on protection policy by international organisations (WTO, Organization of Economic Cooperation and Development (OECD), World Bank) have been used in the present paper.

Results and Discussion

1. Theoretical aspects of protectionism, instruments, and their classification

With economic development, the protectionism or the implementation of the sector protection policy does not limit itself with introduction of the customs tariffs and quotas for the protection of internal trade. The main purpose of the protection policy is protection of the local producers from external competition (Oļevskis, 2000, Explanatory Dictionary of Economy, 2000, WTO Agreement on Agriculture, 1995, Libermanis, 2006). Therefore, according to the authors of this paper, any support, administrative etc. measures applied by a country resulting in increase of competitiveness of local companies should be deemed protectionism.

The authors of this paper offer the following definition of **protectionism:** *economic policy exercised by the government and targeted at protection of the local production companies from outside competition by making use of an external trade regime and public support for the improvement of international competitiveness of the producers.*

Summing up the adverse effects of the protection policy implementation, the viewpoints of different authors (Tongeren, 2008, Halmai, Elekes, 2005, Ash, 2005, Libermanis, 2006, Grinovskis, 1996, Tracy, 1996, Isaksens u.c., 1992, Fischer etc., 1999, Mcconnell, Brue, 1993) seem to be in accord: discontinuation of the market protection measures once introduced is quite complicated; they cause distortions in decision-making of production and trade as well as over a long-term create high costs not only to consumers but also economy as the whole. In agriculture, implementation of the protection policies hinders structural changes.

On the basis of the above definition and studies of different authors, a conclusion can be made that the main **instruments applied** for implementation of the external trade regime and the support of the sector are customs tariffs and quotas, market intervention, government subsidies and investments, tax policy, international agreements, different norms and prohibitions (standards), exchange rate regulation, licences and permits. Pursuant to the definition of

protectionism, the support policy of a sector is part of its protection policy, since instruments applied in both areas overlap therefore actually any discussion on the support policy of a sector means also the discussion of protectionism.

The following classification groups of the applied instruments can be defined in the protection policy:

Classification by the type of motivation According to an opinion by G. Libermanis (2006), the government ensures economic regulation of the state with the help of a leverage; the levers in a system like that may be divided into two groups: they are either economic or administrative levers. Economic levers constitute a substantial part of the social and economic motivation mechanism for they stimulate individuals to make a free choice of certain economic activities. Administrative levers like prohibitions, binding orders and norms limit the right of an individual of free choice, thus ignoring the cost-effectiveness stemming from profit and competition.

Classification by the object of support. E. Grinovskis (1996) divides the support payments in direct and indirect payments. Direct payments support the production of goods, while indirect payments support: the acquisition of resources. The scholars of Latvian State Institute of Agrarian Economy (LSIAE) further divide the direct payments into direct payments coupled with the product (paid out per a product unit) and the production-coupled direct payments (paid out per ha or per head of agricultural animal). However there are fully de-coupled direct payments also (Latvian Agriculture and Rural Areas 2000: Policy and Development, 2001).

Classification by the source of funding. The subdivision most relevant to the specifics of agriculture is that of grouping support measures into *market price support* and *direct income support*. In case of the market price support, higher income to producer is ensured by sustaining relatively high prices on the market accomplished through regulation measures of the external market, e.g., intervention and export aid measures. The direct income support to producers is provided disbursing aid by certain criteria which may be directly or indirectly connected with production or turnovers thereof. The aid disbursed that way is funded by consumers for the money is sourced from taxes and paid to farmers according to a nationally approved procedure (Latvian Agriculture and Rural Areas 2000: Policy and Development, 2001).

According to M. Tracy (1996), the price support is effective for achievement of the stability in prices, providing just a short-term solution to farm income problems. The latest research papers on agrarian protectionism group the market price support and the direct income support together as *income support* for both are targeted at increase of

the farm income (Halmai, Elekes, 2005, Ash, 2005, Tongeren, 2008).

Classification by impact on production volumes. According to E. Grinovskis (1996), the stimulating protectionism and the limitative protectionism are two basic forms of measures, the application of which depends upon the market development level and its degree of saturation. The purpose of the stimulating protectionism is rise of the production intensification. The limitative protectionism is applied over periods of market oversaturation to protect the producers' income by paying them for producing less (unfarmed areas, reduction of animal heads).

Other Measures. Apart from market regulating and income support measures, some authors would single out measures having a long-term effect on the development of separate holdings and agricultural sector as the whole. Many of such measures are connected with investments. Thus J. Reiljan and D. Tamm (2008) propose the following classification of main measures of the protection policy:

- development-oriented measures (credit policy, information policy, and measures for product development);
- market measures (price policy, market policy, foreign trade policy, and the state intervention);
- support measures (direct and indirect support measures).

E.B. Deksnis (1998) on the contrary classifies measures into the production cost reducing measures and the structural changes facilitating measures as well as the production support.

Table 1 reflects the distribution of agriculture protection measures making use of the classifications by the above authors. The protection measures are evaluated according to the type of impact and administration of measures.

In the case of the first criterion *Regulating role of the government* the degree of the state regulatory intervention in the implementation of each support measure is evaluated. Thus it is assessed whether as the result of the particular support measure the beneficiaries are free to take their own management decisions motivated by economic viability, or the particular support measure is heavily regulated by the government (evaluation: large impact).

The next two criteria: *Improvement of the competitiveness of the sector* and *Increase of the production volumes* help form a judgement on what effect the support measure has on the upgrading of the sector: whether it is focused on the increase of competitiveness and the producers' income, or on raising the production volumes.

Evaluating the criterion *Regional Development* account is taken of how the particular support measure impacts the process of regional development

Table 1

Evaluation of the main protection measures applied in implementation of the agricultural policy

Protection measures and their evaluation criteria *	Price support	Direct payments coupled with production	De-coupled payments	Production efficiency promotion measures	Production volume limitative measures	Support to observation of environment protection requirements
Regulating role of the government	xxx	xx	x	x	xxx	xxx
Improvement of competitiveness of the sector	x	x	xx	xxx	0	x
Increase of the production volumes	xxx	xxx	x	xx	0	0
Regional development	0	xx	xxx	xx	x	0
Development of rural environment	0	0	xx	0	xxx	xxx
State budgetary outlays	x	xxx	xx	xx	xx	xx
Administration efficiency	x	xxx	xxx	x	xx	x

* xxx – large impact, xx – medium impact, x – small impact, 0 – no impact

Source: authors' research

and whether it has just focussed on the promotion of agricultural production efficiency or also on creating pre-requisites for higher employment in rural areas.

The criterion *Development of Rural Environment* is to a certain extent connected with the previous criterion. Evaluating it, a close attention is paid to what qualities of the rural landscape the particular support measure is going to promote.

Any measure funded from the government budget shall be assessed from the point of view of the implementation costs and the administrative load. As the funds for financing of almost all support measures are sourced from the budget (just in case of the market price support when a part of funding is collected directly from the consumers) and in our case the purpose is not to differentiate between the EU budget and the government budget, the evaluation "*large impact*" is assigned to measures the implementation of which, according to the opinion of the authors, require larger budgetary outlays and at the same time, when looking back, have brought the least effect.

Evaluating the criterion *Administrative Efficiency*, the evaluation "*large impact*" is assigned to measures the administration of which according to the authors, has been most effective: i.e., the best trade-off has been found in respect of the amount of costs and the administrative load.

2. Historical development of agricultural protectionism

Distinctions of agriculture and its specific circumstances are the main arguments exploited as justification for different forms of the public intervention and protection targeted at the market stabilisation. The agrarian protectionism is practised in most countries of the world for already more than a century (Table 2).

According to the research conducted in 1996 by M. Tracy on European countries, several stages may be singled out in the development process of agricultural policy after 1945:

—   for improvement of the food supply under the food shortage conditions of the post-war period, income guaranties were granted to farmers as well as there was a price support either introduced or re-introduced as an instrument, besides the credit policy and subsidies of that time were tailored to promote the farm investment;

—   at the start of the 1950s, when the agricultural production was already capable of satisfying the demand, the impact was shifted to extension of specific sub-sectors and increase of the agricultural production efficiency;

—   in the 1980s, the support measures so far applied, had promoted the production extension and created overproduction depriving the farmers of incentive of adjusting the supply structure and volumes to the market demand,

Table 2

Protection measures applied in the agricultural sector of different countries at the end of the 19th century and the beginning of the 20th century

Time period	Protection measures	Countries
1980s of the 19th century – 1920s and 1930s of the 20th century	Customs tariffs	France, Germany, Italy, Belgium, Switzerland, Austro-Hungarian Empire, Sweden, Spain, Portugal, Russia, the USA
1930s of the 20th century – 1940	Customs tariffs	France, Germany, the United Kingdom
	Local grain addition percentage	Norway, France, Germany, Sweden, Italy
	Restriction of imported volumes, import quotas	France, Germany, the United Kingdom, Belgium, the Netherlands, Italy, Switzerland
	Intervention, state stocks' procurement	France, Switzerland, Sweden, the USA, Canada
	Subsidies	the United Kingdom, Switzerland
	Cross border agreements, agreements	the United Kingdom, France, Germany, Hungary, Romania, Yugoslavia, Australia, New Zealand
	Export subsidies	Canada, Argentina, Australia, South Africa, the Republic of Ireland, New Zealand

Source: summary by the authors according to M. Tracy, 1996

consequently the governments were more and more obliged to intervene the market regulation. As the farm income level was still not satisfactory, the need appeared to address the structural policy.

Protectionism was widely applied also in countries of the former Soviet Block, creating market distortions, combining together the collective property, centralised distribution of resources, price dictation and government-regulated market system. K. Anderson and J. Swinnen (2008) have singled out several periods in the development of protectionism under the Soviet system:

— the middle of the 20th century (1950-1980) was characterised by the flourish of the agricultural sector. About 30% of investment was channelled into agriculture. The protection policy was implemented through centrally set high sales prices and low prices for resources;

— in 1989-1991 the development of the sector was affected by the dilapidating process of the Soviet Union and the following liberalisation of the market relationships. The farm income fell dramatically, for the raw materials' prices grew much more rapidly than the sales prices of products. The protection level of the sector was negligent;

— at the mid-1990s due to the political pressure, the support to agriculture increased and new support mechanisms were introduced;

— starting with the year 2000, the general economic growth improved the budgetary revenue of many former Soviet Block countries allowing enhancement of support to agricultural sector leading to gradual increase of the protection levels to agriculture. The impetus to agricultural

support was provided also by foreign investment into the agro-food sector of the region. The policy changes implemented over this period in agriculture were underpinned by the intention of the former Soviet Block states to join the European Union (EU).

3. Role of the international organisations in restriction of the protection policy

As noted by G. Oļevskis (2000) and S. Fischer etc. (1999), the economy globalisation forces the protection policy to take more concealed expression forms, applying non-tariff trade restrictions. Most countries of the world are the WTO members, therefore in mutual trade they have to adhere to the provisions of the WTO Agreement. The latter provides for trade among countries on mutually profitable conditions without excluding the opportunity to apply the internal market protection measures if appropriate (Pilvere, 2001). The main international regulatory enactments governing the agricultural and rural development policy on the level of inter-governmental level are the following:

— Treaty establishing the European Community (1957) and Single European Act (1987);
— WTO Agreement on Agriculture (1995);
— Doha WTO Ministerial Declaration (2001);
— OECD Positive Reform Agenda (2003).

As the result of agreements achieved within the WTO the agricultural protection is being reduced all over the world, however the largest countries or groups of countries spend massive amounts on agricultural protection which have no tendency to get smaller (Figure 1).

F. Tongeren (2008) points out that in the period of 2004-2006, 54% of agricultural support provided
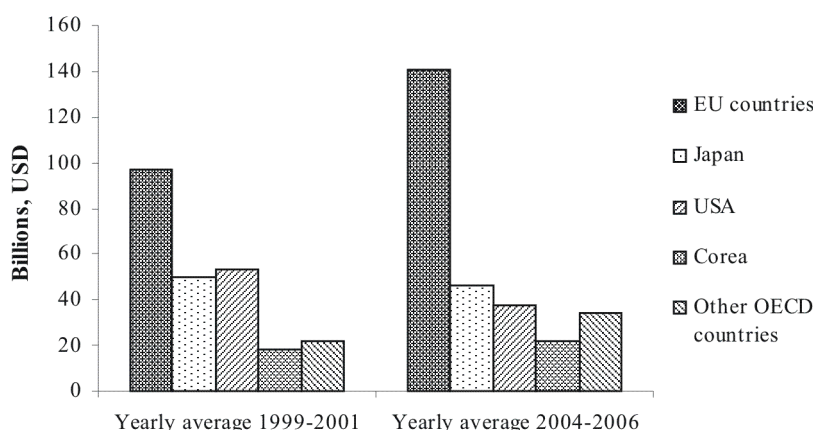
Source: J.P. Chauffour, 2008

Figure 1. Support to agricultural production in OECD countries in 1999-2006, billion USD

for in the OECD countries consisted of the market price support.

4. Economic evaluation of agricultural protection

Assessing the overall effectiveness of protection measures, the authors' starting point is the latest research conducted on agrarian protection using the analysis of income support measures for identification of problems. This group of measures includes both the application of the external trade regime as well as several types of the public support measures. The most extensive research is carried out within international organisations: OECD, WTO and the World Bank, arriving at a concordant opinion of the negative impact produced by support measures (Tongeren, 2008, Chauffour, 2008, Anderson, Swinnen, 2008, Courleux, Guyomard, 2006, Ash, 2005, Halmai, Elekes, 2005, Abler, 2004 etc.).

Efficiency and distorting effect of the income support measures. Analysing the income support policy, it should be noted up to what extent the funds collected from tax-payers or consumers increase the farm net income or what is "the income transfer efficiency". The results of research carried out within the OECD (Ash, 2005) show that the farm income support is not effective means of increasing the said income. Figure 2 summarises the four main types actual beneficiaries of income support (input subsidies, production-coupled area payments, deficiency payments having the aim of off-setting the product prices and market price support) measures.

The loss of purposefulness of support is related to the programme administration costs, additional costs to suppliers of resources, land owners and payments to/from other countries.

The research shows (Figure 2) that in case of the market price support and deficiency payments only the fourth part of funds actually cause the income increase, while in the case of resource subsidies this share is less than 20%. According to J.P. Chauffour (2008) the support for the production volume is the type of support most harmful to the environment. In the case of subsidies to production resources, market price support, and deficiency payments, the stimulation of demand for resources results in the most part of the disbursed funds being actually paid to resource suppliers and capitalised in the value of land.

The share of financing efficiency is closely linked with the distorting effect on the market of the respective type of support. F. Courleux and H. Guyomard (2006) refer to the research carried out by J. Dewbre, J. Anton and W. Thompson (2001) comparing the income support measures as to their distorting effect on agricultural production and trade (Figure 3).

In their research, the above authors have chosen the price support as the point of reference (100%). They come to a conclusion that subsidising of production resources is the type of support with the highest distorting impact (about 130%); while the subsidies related to production and the price support have the distorting impact of 100%. The production-coupled area payments are less distorting (about 35%). The least distorting impact is laid by the decoupled area payments. Any type of support is less profitable to small holdings, for the largest part of support payments related to production volume is disbursed to large holdings (Ash, 2005).

The capitalisation of the support payments. Within the current ongoing process of agricultural
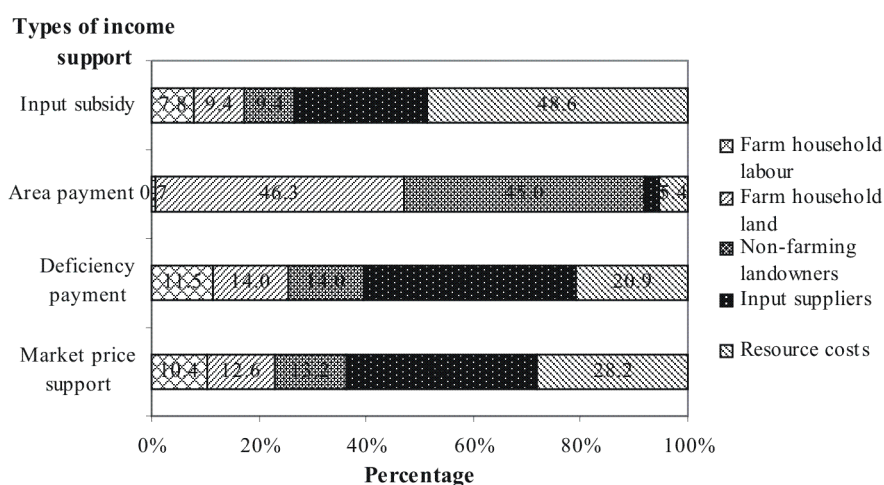
Source: made by the authors according to K. Ash (2005)

Figure 2. **Share of financing structure of income support in agriculture**
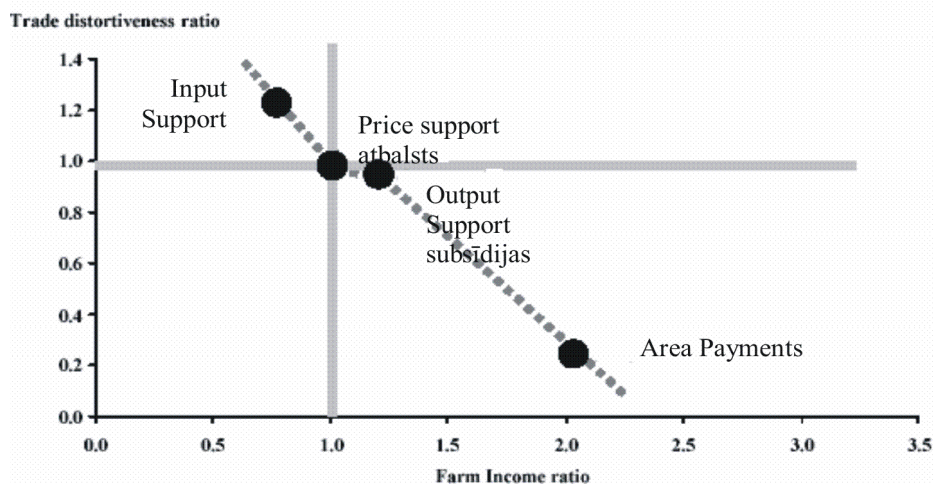
Source: F. Courleux, H. Guyomard (2006)

Figure 3. **Income support impact on trade and income from agriculture**

policy reform, the price support is replaced by support related to land. This trend of reform dominates not only in the European Union but also in the USA, Mexico and Norway. Therefore the support capitalisation as an inevitable side effect of the support apportionment is coming to the forefront. F. Tongeren (2008) has defined this phenomenon as increase of the ownership value of the agricultural holding under the impact of agricultural support payments. Capitalisation effect is especially well expressed for all area support payments making them a hindrance in the way of a dynamic growth of the sector. The increase in the land value raises also the leasing rental thus encumbering the entrance of new players in the agricultural sector as well as raising costs for the land lessee. K. Ash (2005) notes that the gain of farmers-landowners from the land value increase cannot be attributed to farm income.

The distorting effects of the agricultural policy. The common finding of all latest research is that decoupling of support from the production essentially decreases the level of distortion and improves effectiveness. However any agricultural support programme leaves a considerable impact on decisions made in agriculture and trade, consequently a "perfect" agricultural policy cannot exist.

The appropriate support measures regarding the multifunctional role of agriculture. The benefits from different agricultural support programmes are concentrated in one sector, while the costs are distributed among the society as the whole. Therefore it is important to establish optimum mechanisms of agricultural protection policy.

The agricultural and rural development policies in developed countries are currently dominated by the aggregate support of market prices and direct income

support hardly providing desirable results. Over the recent years, the multifunctional role of agriculture and the trenching of rural development aspects from the agricultural development get more and more emphasis. Instead of defining clear and attainable goals in both areas separately, many countries including the EU try to address both areas with the same support measures. The EU, for instance, apart from decoupled area payments, introduces also the requirement to observe the cross-compliance rules. As it is pointed out in the latest research by the OECD and the World Bank (Tongeren, 2008, Chauffour, 2008) this is an indirect and thus an ineffective way of ensuring adherence to environment provisions or animal welfare requirements. Choosing clearly defined and targeted policy goals, the result might be achieved much more effectively and at lower costs; e.g. entering into specific contractual relationships with farmers on provision of specific environment services.

Conclusions, proposals and recommendations

1. The protection policy has been applied for the protection of agricultural sector already since the end of the 19th century. Also nowadays agriculture is a sector with a high level of protection.

2. The agricultural and rural development policies in developed countries are currently dominated by the aggregate support of market prices and direct income support causing undesirable side-effects as capitalisation of the support payments and ineffective distribution. According to the research conducted by the OECD, the majority of the received support is actually further paid

to resource suppliers and capitalised in the land value.

3. The agreements recent of liberalisation of the agricultural policy of multinational alliances (WTO, EU and OECD) prescribe re-orientation from the production or the price support to the land area-related support. The decoupling of the support payments from the production essentially reduces the distorting impact of support on the production and trade decisions as well as improves the effectiveness.

4. Taking account of the conditions summarised above which define the special role of agriculture in any country's economy and the downward welfare trend created as the result of the economic development, it can be concluded that internal market protection measures, are, on the whole, necessary. The agriculture protection policy implemented in this country should be perfected, so that it is:
    − more effective (better targeted);
    − harmonised with international requirements.

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Kopsavilkums

Lauksaimniecībai ir īpaša loma jebkuras valsts ekonomikā. Ekonomikas agrīnajā attīstības stadijā daudzās valstīs situācija lauksaimniecības nozarē bija nelabvēlīga, kā rezultātā dažādās valstīs ir pielietoti lauksaimniecības protekcionisma instrumenti. Tie ir daudzveidīgi un ir iespējama daudzveidīga to klasifikācija. Attīstoties ekonomikai, pielietoto protekcionisma instrumentu veidi un nozīme mainās. Pasaules Tirdzniecības organizācijā notikušajos sarunu raundos valstis cenšas panākt vienošanos par protekcionisma līmeņa samazināšanu. Līdzekļi, kas tiek iekasēti no nodokļu maksātājiem vai patērētājiem un izmaksāti lauksaimniekiem, ne vienmēr sasniedz savu mērķi- palielina lauku saimniecību tīros ienākumus. Atbalsta pasākumi ne vienmēr ir efektīvi un tiem ir kropļojoša iedarbība gan uz nozari, gan ekonomiku kopumā. Tāpēc lauksamniecības politikā ir nepieciešams izvēlēties skaidri noteiktus un uz katru politikas jomu attiecinātus mērķus.

Financial Support, Training and Willingness to Pay for Integrated Crop Management in Greece

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Abstract

In recent years, consumer concern regarding food safety and environmental pollution has enhanced the value of "sustainable agriculture" that can evolve indefinitely, thus achieving greater human utility and a more efficient use of resources, while maintaining a balance with the environment which is favourable to most other species. Integrated Crop Management (ICM) is considered to be a sustainable way of farming that is friendly towards the environment, has a realistic economic potential, and uses up-to-date technology in order to produce high quality goods in the most efficient manner. The objective of this paper is to explore the willingness of producers to pay for the implementation of Integrated Crop Management, to examine the role of training for farmers using this sustainable farming system and, finally, to inquire into whether specific financial support measures are required for ICM implementation. A stratified random sampling procedure was used to collect primary data from a representative sample of certified farms, which were then analysed by means of the chi-square non-parametric statistic. According to the results, the financial support for the system's implementation ranges between 70 and 140 EUR/ha on average. The willingness to pay is at the level of 100 EUR /ha for the majority of farmers, mainly due to the reduction in expenditure for agrochemicals. The willingness to pay is not related to farm income but is significantly linked to the training farmers have received on this sustainable way of farming. The results of the present research can assist policy makers in introducing the required agricultural policy measures for implementing an effective financial support scheme and, by extension, for an effective endorsement of this sustainable farming system.
Key words: environment, integrated crop management, financial support, willingness to pay.

Introduction

The rising awareness concerning the effect conventional farming has on the environment, coupled with growing consumer concerns over food safety, have brought sustainable farming systems, such as Integrated Crop Management (ICM), to the forefront. According to the I.O.B.C., the goals of integrated management include: a reduction in inorganic input use (fertilisers and pesticides), sustainable production of high quality foodstuffs, stabilisation of the farmers' income, pollution abatement and the preservation of the multifunctional character of agriculture (Anonymous, 1999). This specific farming method offers producers the possibility to follow a mid-way solution between organic and conventional farming (Morris and Winter, 1999). It also serves well the twin objectives of environmental conservation and the protection of the farmers' income (El Titi, 1999; Elliot and Mumford, 2002).

The introduction of ICM in Greece began in 2000 and was mainly implemented through cooperatives and producer groups; ever since then, it has shown remarkable expansion. The prefecture of Imathia has the largest share in the country, in terms of land devoted to integrated crop management. Integrated agriculture in Greece is mainly applied in the production of peaches. As in other European countries, fertilisation and pest management are the main fields of ICM implementation in Greece. It has been observed that, in Europe, integrated agriculture in most cases is associated with a reduction of production costs due to reduced expenditure for fertilisers and pesticides (Jordan et al, 1997; Tamis and van der Brink, 1999).

The implementation of the integrated management system mainly involves costs related to the payment of the certification consultant (who also undertakes, inter alia, the system's technical support and expenses for residue and soil analyses) and the certification process fee that is paid to the certifying

authority. This cost basically predetermines the inclusion of cooperatives (or producer groups) rather than individual producers in the system, since the certification and system implementation costs per person decrease, as the number of people participating in integrated management increases.

Integrated management systems have been receiving financial support through special agri-environmental measures included in national rural development programmes for the period 2000-2006, based on the Regulation (EC) 1257/99, in order to cover part of or the total cost of the certification consultant and the certifying authority (European Commission DG Environment, 2003). Several cooperatives were included in such programmes and the measure used in most cases to support integrated agriculture was measure 4.3, which comes under priority Axis 4 of the operational programme "Rural Development – Restructuring of the Countryside 2000-2006". This measure belongs to the 3rd Community Support Framework and is co-financed by the European Agricultural Guidance and Guarantee Fund – Guidance Department and the Greek State (Ministry of Rural Development and Food, 2006).

The current research question is linked to the necessity or redundancy of the financial support for Integrated Crop Management and the provision of training on this sustainable farming system over the next period, both on a European Union and national level. The aim of the present paper is to examine the willingness of producers to pay for the implementation of Integrated Crop Management, and the role of training for farmers practising this alternative farming system. Furthermore, this study examines whether financial support measures are required for ICM implementation.

The tasks of this research are:
− to estimate the additional production costs pertaining to ICM implementation that were incorporated into financial support measures during the previous period;
− to assess the willingness of producers to pay for the ICM system;
− to explore the relationship between willingness to pay and cost reduction for inorganic inputs;
− to describe the relationship between willingness to pay and the farmers' perceptions;
− to examine the impact of training on willingness to pay and on the farmers' perceptions;
− to recommend an effective financial support scheme for this sustainable farming system.

Primary data were used from a representative sample of farms for the purposes of the study. The research focused on peach cultivation because this sector represents the largest share of the total area used for integrated farming in Greece. The data were collected using a questionnaire and through direct interviews from a random sample of 100 farms where integrated management of peaches was practiced.

The sampling was carried out using random stratified sampling, which corresponds to the objectives of this research, since it provides more accurate estimates for the same number of population units as regards its various parameters. The total population was divided into 7 strata (cooperatives certified in relation to integrated management for 2004). The selection of the sample members in each cooperative was made using systematic selection, according to which, the selection of the sample is done in a systematic way, from a numbered list of the population members. It is a random selection, because the starting point is selected at random and each sample member has the same probability of being selected out of the whole population (Siardos, 1997).

The statistical package SPSS (Statistical Package for Social Sciences) was used in order to perform the statistical analysis. Non-parametric statistical techniques were applied to the data. The chi-square statistical test was used in order to check the hypotheses. This method provides information about the existence of statistically significant differences between the characteristics under consideration. The differences are significant, when the significance level α is smaller than a specific significance level (0.05). At the same time, the chi-scuare test also provides information about the degrees of freedom, i.e., the number of independent observations used in the statistical test (Ioannidis, 2001). Fisher's exact test was also applied, in order to ascertain the accuracy of the results. This test is used when the double-entry tables include a frequency of observations that is lower than 5 (per cell), and particularly in the case of a 2*2 contingency table (Tsantas et al., 1999).

Results and discussion

The results of the research show that the financial support received by the cooperatives in order to implement integrated management, covered 50 to 100% of the total certification costs. According to the research results, the system's certification and implementation costs range between 80 and 270 EUR /ha for the producers in the sample, with 120 and 150 EUR /ha being the most frequently quoted prices, and the average being equal to 140 EUR /ha. The costs for the certification and implementation of the integrated management system differ from producer to producer and from cooperative to cooperative. Cooperatives with a large number of producers in integrated management have a lower cost of certification per producer, compared to cooperatives that include a small number of producers. Furthermore, the

certification cost, and therefore the financial support given to certain cooperatives, also depends on the area under integrated management belonging to each producer, and on various other parameters (e.g., production quantity).

Regarding training, prior to their involvement in integrated farming, 47% of those asked had previously attended training seminars, compared to 53% who had not. Following the application of the chi-square statistical test, a significant relation was noted between farm income and the attendance of training seminars (Table 1). Thus, as we move from the lower income levels to the higher ones, the number of producers who have attended training seminars steadily increases. It is obvious in Table 1, that the majority of producers with a farm income below EUR 12000 have not attended any training seminars, as opposed to the producers whose annual farm income exceeds EUR 12000 (and particularly those over EUR 20000).

There is a statistically significant relation between the attendance of training seminars and the producers' perceptions regarding the differences that exist between integrated and conventional farming, in relation to consumer health. Thus, the majority of farmers who have attended training seminars

believe that integrated management is far superior to conventional farming, as regards the health of consumers (Table 2).

As regards the amount producers are prepared to pay annually for integrated farming, the majority of producers (52%) are willing to pay 100 or 150 EUR / ha. In addition, 9% of the producers are willing to pay 200 EUR /ha, 18% of the producers over 200 EUR / ha, and only 6% of the producers in the sample are not willing to pay any amount for integrated farming (Table 3).

The willingness to pay is strongly related to the attendance of training seminars. Table 4 shows that those who are willing to pay over 200 EUR /ha have attended training seminars, while the majority of those who are not willing to pay for their participation in integrated farming have not attended any such seminar.

Willingness to pay was also found to have a statistically significant correlation with the producers' perceptions regarding the differences between integrated and conventional farming, as regards the environment and consumer health. Thus, the producers who are willing to pay over 150 EUR /ha are those who believe that integrated farming is far superior to conventional farming, as far as the

Table 1

Farm income in relation to training

Farm Income (EUR) Training	< 6000	6000 -12000	12000 -20000	> 20000	Total	Statistics
YES	4	7	13	23	47	$\chi^2 = 23.443$
NO	17	19	11	6	53	d.f. = 3
Total	21	26	24	29	100	α = 0.000

Source: Research results

Table 2

Training in relation to the way farmers perceive the differences between integrated and conventional farming as regards consumer health

Training Differences between ICM[1] and CONV[2] as regards consumer health	YES	NO	Total	Statistics
No difference between ICM and CONV	0	17	17	$\chi^2 = 8.532$
ICM is better than CONV	20	21	41	d.f. = 2
ICM is much better than CONV	27	15	42	α = 0.014
Total	47	53	100	

[1] Integrated Crop Management; [2] Conventional farming

Source: Research results

Table 3

Willingness of producers to pay for ICM implementation

EUR /ha/year	Frequency	Percentage (%)
0	6	6
50	15	15
100	25	25
150	27	27
200	9	9
> 200	18	18
Total	**100**	**100**

Source: Research results

Table 4

Training and willingness to pay for ICM implementation

Training Willingness to pay (EUR /ha)	YES	NO	Total	Statistics
0	1	5	6	
50 or 100	14	26	40	$\chi^2 = 12.061$
150 or 200	15	21	36	d.f. = 3
> 200	17	1	18	$\alpha = 0.007$
Total	**47**	**53**	**100**	

Source: Research results

Table 5

Willingness to pay for ICM implementation in relation to the farmers' perceptions about the impact of integrated and conventional farming on the environment

Willingness to pay (EUR /ha) Difference between the impact of ICM[1] and CONV[2] on the environment	< 50	100	150	> 150	Total	Statistics
No difference	9	5	2	3	19	
ICM better than CONV	11	12	19	9	51	$\chi^2 = 23.703$ d.f. = 6
ICM much better than CONV	1	8	6	15	30	$\alpha = 0.001$
TOTAL	**21**	**25**	**27**	**27**	**100**	

[1] Integrated Crop Management;   [2] Conventional farming

Source: Research results

environment and consumer health are concerned (Tables 5 and 6).

It is remarkable that no statistically significant correlation emerged between willingness to pay and the annual income of the producers in the sample ($\chi^2 = 10.702$, $\alpha = 0.297$, d.f. = 9). This means that willingness to pay is not related to income but rather to the attendance of training seminars, and also to the producers' perceptions concerning the effect of integrated and conventional farming on the environment and the health of consumers.

Additionally, a statistically significant relation was noted between the attendance of training seminars and the adoption of ICM in order to improve selling conditions for products (Table 7). Thus, the majority

Table 6

Willingness to pay for ICM implementation in relation to the farmers' perceptions about the impact of integrated and conventional farming on consumer health

Willingness to pay (EUR /ha) Difference between the impact of ICM[1] and CONV[2] on consumer health	<50	100 or 150	> 150	Total	Statistics
No difference	7	8	2	19	$\chi^2 = 15.708$ d.f. = 4 $\alpha = 0.003$
ICM better than CONV	9	26	6	41	
ICM much better than CONV	5	18	19	42	
TOTAL	21	52	27	100	

[1] Integrated Crop Management   [2] Conventional farming

Source: Research results

Table 7

Training and inclusion in ICM in order to facilitate the sale of products

Training Inclusion in ICM in order to facilitate the sale of products	YES	NO	Total	Statistics
Disagree	0	4	4	$\chi^2 = 9.083$ d.f. = 2 $\alpha = 0.011$
Neither agree nor disagree	6	16	22	
Agree	41	33	74	
TOTAL	47	53	100	

Source: Research results

Table 8

Willingness to pay and inclusion in ICM for environmental protection purposes

Willingness to pay (EUR /ha) Inclusion in ICM for environmental protection purposes	≤50	100	150	> 150	Total	Statistics
Disagree	9	9	3	1	22	$\chi^2 = 16.782$ d.f. = 6 $\alpha = 0.010$
Neither agree nor disagree	7	8	9	11	35	
Agree	5	8	15	15	43	
TOTAL	21	25	27	27	100	

Source: Research results

of producers who adopted integrated management in order to facilitate the sale of their products have attended training seminars, while the majority of producers who have not adopted integrated management in relation to the sale of their products have not attended any training seminar. It is thus obvious that training plays a major role as regards the adoption of integrated farming for the purposes of improving the quality and selling conditions of products.

It is important to note that the producers who adopted ICM in order to protect the environment and improve quality are willing to pay a higher price for their participation in integrated farming, compared to producers who had different reasons for doing so (Tables 8 and 9). Thus, the majority of producers who are willing to pay over 150 EUR / ha practice integrated farming for reasons linked to environmental protection and quality improvement while, in contrast, those producers who are willing

Table 9

Willingness to pay and inclusion in ICM in order to improve product quality

Willingness to pay (EUR /ha) Inclusion in ICM in order to improve product quality	≤50	100 or 150	>150	Total	Statistics
Disagree	3	3	0	6	$\chi^2 = 11.148$ d.f. = 4 $\alpha = 0.025$
Neither agree nor disagree	10	14	5	29	
Agree	8	35	22	65	
TOTAL	21	52	27	100	

Source: Research results

Table 10

Willingness to pay for the ICM system in relation to the cost reduction for inorganic inputs

Willingness to pay (EUR /ha) Cost reduction (EUR /ha)	< 100 €/ha	> 100 €/ha	Total	Statistics
< 140 EUR /ha	17	9	26	$\chi^2 = 6.045$ d.f. = 2 $\alpha = 0.039$
140 – 250 EUR /ha	14	17	31	
> 250 EUR /ha	11	22	33	
TOTAL	42	48	90	

Source: Research results

to pay only up to EUR 50 practice ICM for different reasons.

Finally, there is a significant relation between the cost reduction per hectare for fertilizers and agrochemicals, and the amount producers are willing to pay for their participation in the integrated management system (Table 10). Therefore, the producers with the biggest reduction in cost per hectare for agrochemicals and fertilisers (of over 140 and particularly over 250 EUR /ha), are willing to pay a higher price for their participation in integrated farming, as opposed to those producers who have reduced their operational costs by less than 140 EUR /ha. Thus the reduced expenses on agrochemicals and fertilisers per hectare have a positive effect on the producers' willingness to pay.

Conclusions and Recommendations

It is concluded that during these first years of the implementation of integrated crop management in Greece, the additional production costs incurred due to the system's implementation, including the certification process, were on average 140 EUR / ha. This system was financially supported through special rural policy measures, at a mean rate of 70 to 140 EUR /ha.

At the same time, the overwhelming majority of producers reduced their expenditure for fertilisers and

agrochemicals following the adoption of integrated management. This reduction exceeded 140 EUR / ha for approximately 2/3 of the producers, without leading to a similar reduction in their production level.

For the majority of certified producers, the willingness to pay exceeds 100 EUR /ha, mainly due to the reduction in agrochemical and fertiliser costs (over 140 EUR /ha). If required, the producers seem to be willing to cover almost the total cost for the implementation and certification of the system, since they benefit from the reduced expenditure on agrochemicals and fertilisers; it is also possible that they can foresee the possibility of additional cost reductions that will not have an adverse effect on production.

Additionally, it is worth noting that the producers' willingness to pay is not affected by their income but rather by their perceptions regarding the impact of integrated and conventional farming on the environment and consumer health; it is also strongly associated to the training they have received in relation to this sustainable method of agricultural production.

As regards the role of training in particular, it should be pointed out that, at present, the producers that have access to training are mainly those with a high farm income. Training plays a major role in

improving the knowledge of producers about the impact of conventional and integrated farming on consumer health, and also in their decision to adopt the latter system in order to improve product quality and facilitate the sale of their products on the market.

Based therefore on the above-mentioned conclusions, and in order to arrive at an efficient financial support scheme for this sustainable farming system, the following recommendations are being made:

− Financial support can be used effectively during the initial years of transition from conventional to integrated farming, as an incentive to adopt and implement the system (a period of 6 years seems to produce satisfactory results).

− Further financial support after the initial period (e.g., of 6 years) cannot be financially justified, since the producers' willingness to pay for the system, mainly due to the reduced expenditure on agrochemicals and fertilisers, more than exceeds the additional costs incurred by the implementation of the system and the certification process.

− Finally, it is recommended that the said financial support be directed towards the provision of training for producers at all income levels, since this is expected to lead to multiple benefits for the producers, the consumers and the environment.

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Retransfer of Incomes in Selected Developing and Developed Countries

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Abstract

The continuing process of globalisation and regionalisation bears implications for farmers and the agricultural policies in developing and developed countries. An assessment of agricultural policy impacts is bound to be complex and is often supported by quantitative modelling analysis. The article provides an assessment of the present state of applied modelling in the agricultural policies. This article reports the results of an analysis that examined different policy measures providing support to producers in terms of their effects on a selection of indicators. It sets out a conceptual framework for understanding the links among these two broad phenomena, and then discusses emerging issues in developing countries and the subsequent effects on the farms incomes. This article is an empirical cross-country analysis based on the data from 1990 to 2005 according to the methodology of the OECD. The paper pays attention on differences in the agricultural policies using multiple instruments in developed and developing countries as well as the distributional effects of transfers' impact on domestic price, supply and farm income. The author has examined the role of economic development in the framework of agricultural support policies.

Key words: interventionism, retransfer of incomes, agriculture support policy.

Introduction

The transformations in the environment in the 1990s and at the beginning of a new century defined as globalisation bore substantial implications for the intervention mechanisms in the process of the creation and division of incomes in the agricultural sector. The changes of external conditions determined not only transformations in the food economy but also the systems of agricultural support. The growth of the significance of external determinants for the impact instruments resulted from the increasing dependence on global markets and international corporations, operating within the area of processing, trade and supplying with production determinants as well as being a result of subsequent agreements in the international arena. The disproportions in the level of economic development and the level of advancement of agricultural sector transformations influence the selection of impact instruments. However, the whole phenomenon should be considered from two perspectives. There are two opposing processes to deal with: globalisation and regionalisation, regarded as the creation of integrative agreements protecting states from negative effects of the process of globalisation and preparing for deepening the process of the opening of markets (such aspects are indicated, among other things, by: Stiglitz J., 2004; Giddens A., 2000). The implemented solutions in the state interventionism should be considered from the angle of share in such a kind of connections and not only the level of development of a single state. It is possible, however, to pose a question whether the support structure is determined by the level of economic development or whether it is the reason for the level of agricultural sector growth or other determinants. The main aim was to examine the role of economic development in the framework of agricultural support policies. The author puts forward the hypothesis that the economic development has determined the adjustments of agricultural support policies in globalisation process. The author uses the Ward method, the Durbin-Watson test, correlation analysis, and the comparative analysis.

Methodology of the research

The research included the years of 1990-2005, but with reference to the states not being the OECD members. The year 1992 was accepted as the initial period for the assessment of support policy, for regard of the accessibility of statistical material. The analysis included 26 states in total (Figure 1). The basic problem concerned distinguishing the determinants diversifying the level of economic development. The parameter diversifying states in respect of development is very often Gross Domestic Product (GDP) per capita. However, it only includes a narrow area of the examined phenomenon. It is even possible to define the cases when on the conditions of economic growth the phenomena connected with development were not observed (e.g., India (Piasecki R., 2003)). A development is a much wider notion than only the changes of income per capita, as it includes a great variety of qualitative and structural processes taking place together with economic

growth and they determine the analysed phenomenon (Piasecki R., 2003; Hirschmann A. O., 1981). In this particular instance, though, that measure has some additional value, because it presents the income possibilities in the scope of conducting agricultural interventionism and a social ability to accept it (understood as the acceptance for the retransfer of incomes to this area of economy by taxpayers and consumers – depending on the accepted channel of the inflow of funds). Moreover, by disintegrating national income per capita, which constitutes a broad measure, we can present it as a product of efficiency and a relation between working people and the total number of population (Tokarski T., 2007). Then, the income should be considered as the outcome of the changes of economic growth and population.

A development herein is defined as a possibility of creating individual interests assessed by the accessibility to a wide group of instruments or as economic and social effects of a state impact on the welfare of individuals. Along with economic parameters such as, e.g., national income per capita, the structure of its division (measured, among other things, with Gini coefficient) it also includes: the use of leisure, the access to education and health care, the state of environment, freedom, and social justice. During the analysis of determinants diversifying particular states in respect of the level of development the following factors were taken into consideration (some of these factors were analysed by: Tweeten L., Thompson S., 2002; Gardner B., 1996; Legg W., 2003; Krueger A., Schiff M., Valdes A., 1991): GDP per capita, GNP per capita, the level of incomes diversification (Gini coefficient, trade balance of agricultural produce, the share of farmers in total population, the share of agricultural value added in total value added, the amount of agricultural land resources in comparison with the area, dynamics of GDP and GNP growth, and the share of agriculture in trade exchange).

The concept of retransfers as the factor influent on the development of the farming sector is based on several assumptions: transference of development

impulses from other segments of the economy (Gardner B., 1996; Czyżewski A., 2001; Woś A. Zegar St., 2002), the necessity of payment for public goods and externalities (Atkinson, Stiglitz, 1980, regards of the ineffectiveness of the market allocation (Josling T., 1974; Stiglitz J., 2004; Czyżewski A., 2001). During the assessment the group of indicators was used which define the structure of financial streams flowing to and from agriculture as well as their impact on the incomes of arable farms and the costs of particular social groups: PSE, CSE, TSE.

PSE (Producer Support Estimate) presents the value of annually gross transfers from consumers and taxpayers to agricultural producers supporting incomes, and the production amount of agricultural producers which is measured in producer's prices. PSE includes price support, payments to production, historical payments, subsidies for the acreage and farm animals, subsidies for indirect consumption, payments limiting the involvement of current means of production, budget transfers supporting agricultural incomes, and other subsidies. It allows estimating the income amount in agriculture developed individually on the market, and the part coming from retransfers. With reference to the transfers streams it presents their income effects in arable farms, regardless of the source of transfers (a taxpayer or a consumer). CSE (Consumer Support Estimate) defines the value of annual gross transfers from consumers to the amount of agricultural produce, measured in the producer's prices. It includes transfers from consumers to producers, transfers from taxpayers to consumers, and the value of subsidies for keeping food. It describes gross costs which are incurred by consumers in a particular system. If we additionally include the relations between the contributions of food expenses in households we can estimate the degree of encumbering consumption expenses with support mechanism. TSE (Total Support Estimate) describes a total value of all annual gross transfers from taxpayers and consumers for supporting the production of incomes and the consumption of agricultural produce. It includes transfers from

Table 1

Description of the selected determinants diversifying the examined states

Explanatory variable	Correlation coefficient	P value
GNI PPP USD per capita	0.5732	0.002
GINI coefficient	-0.3528	0.047
Domestic production/domestic consumption	-0.3629	0.038
Farmers share in the total number of population	-0.3123	0.120

Source: author's research on the basis of: World Development Indicators, World Bank, Washington, 1992, 2004, 2007, www.worldbank.org/data

taxpayers (T_{RPQ}) and consumers (T_{RCQ}) to arable farms as well as the transfer of fiscal burdens' streams from farmers to the state budget (T_{RTC}). It measures, though, a total value of all transfers (1).

$$TSE = T_{RCQ} + T_{RPQ} + T_{RTC} \qquad (1)$$

The correlation analysis referred to the whole population. The year 1990 was accepted as a point of reference. The time progressions were examined with the Durbin-Watson test, which allowed deciding whether we did not deal with the auto-correlation impact on the level of gravity of estimated relations (Charemza W., Deadman D., 1997). Table 1 included these indicators which obtained a statistical relation and did not present auto-correlation. The test of the gravity of linear correlation coefficient (the assumption that p<0.05) eliminated the last value indicated in the table. The key parameter turned out to be the level of national income per capita, which showed a positive statistical relation. The remaining three determinants showed the average negative relation. The increase of the income range was associated with conducting the activities decreasing the support level, and also the increase of the production surplus over consumption induced to decrease transfers, and it was observable in these countries which have a cost advantage

resulting from natural conditions favourable for the development of agriculture.

The division of states was done with the Ward method. The division line was selected by a previous assessment with the analysis of disintegration of Czybyszew. The average quantities of analysed indicators from 1990 to 2005 were used. Those factors were implemented as determinants being the basis of segmentation, with reference to which a statistical relation was discovered and the hypothesis of the gravity of discovered correlation was assumed (three first determinants from Table 1). It contributed to distinguishing five groups of countries, whose description was presented in Table 2. The first group includes such states as: Estonia, Lithuania, Latvia, Mexico, Slovakia, Russia, Poland, Hungary, and Slovenia, it is distinguished by an average level of income per capita, deficit concerning the trade of agricultural produce, and above normal diversity of incomes.

Group II (New Zealand, South Korea, Slovenia, and the Czech Republic) are the states of a higher level of GNP per capita of deficit in the turnover of agricultural goods and the surplus in a trade balance (high variability coefficient from the trade deficit of Korea). The third group included: Brazil, the Republic of South Africa, Turkey, Bulgaria, Romania, China, and Ukraine. Those countries were distinguished by
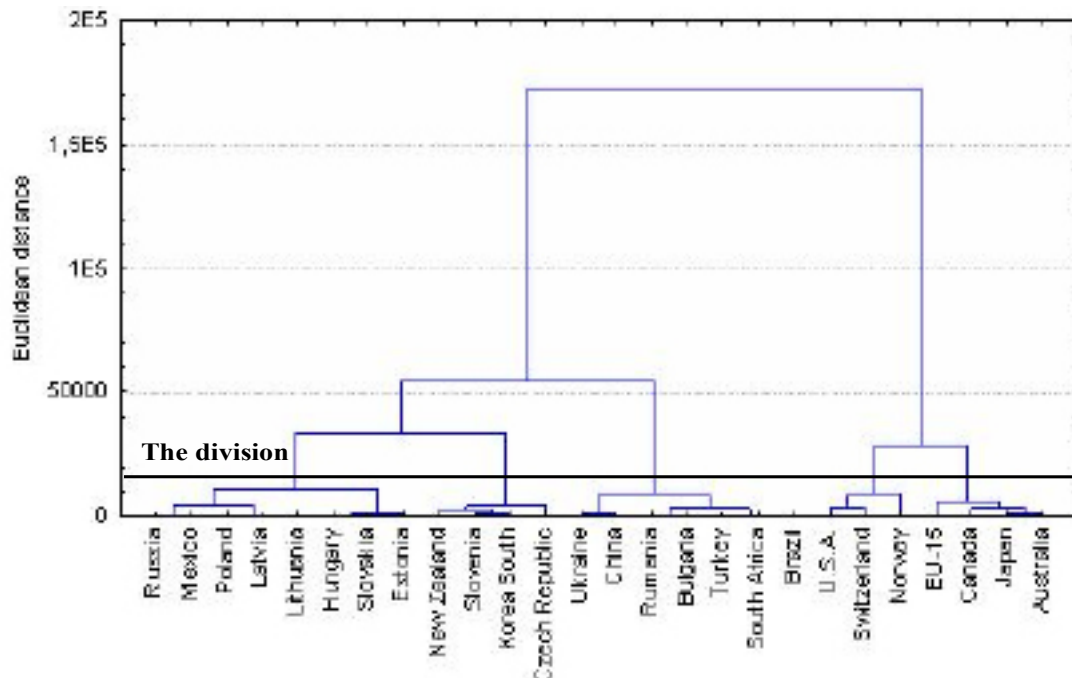
Source: author's research on the basis of the data: World Development Indicators, World Bank, Washington, 1992, 2004, 2007, www.worldbank.org/data.

Figure 1. **The structure of states' division in respect of three aspects of development with the Ward method**

Table 2

Description of the distinguished groups of states

Group of states	Num-ber of states	Average value of GNI PPP per capita	Variability coefficient for GNI PPP per capita	Gini coeffi-cient	Variabi-lity coeffi-cient for Gini coeffi-cient	Domestic prod./ domestic consump.	Variabi-lity coeffi-cient for domestic prod./ domestic consump.
Group I	8	15061,25	14.33	35.68	18.30	0.95	14.58
Group II	4	23407,50	8.60	30.33	20.51	1.93	104.14
Group III	7	8171,43	25.36	43.27	32.45	1.08	11.72
Group IV	3	44993,33	10.41	35.57	24.33	0.96	13.78
Group V	4	33125,50	8.59	32.85	10.87	1.56	67.78

Source: author's research on the basis of: World Development Indicators, World Bank, Washington, 1992, 2004, 2007, www.worldbank.org/data.
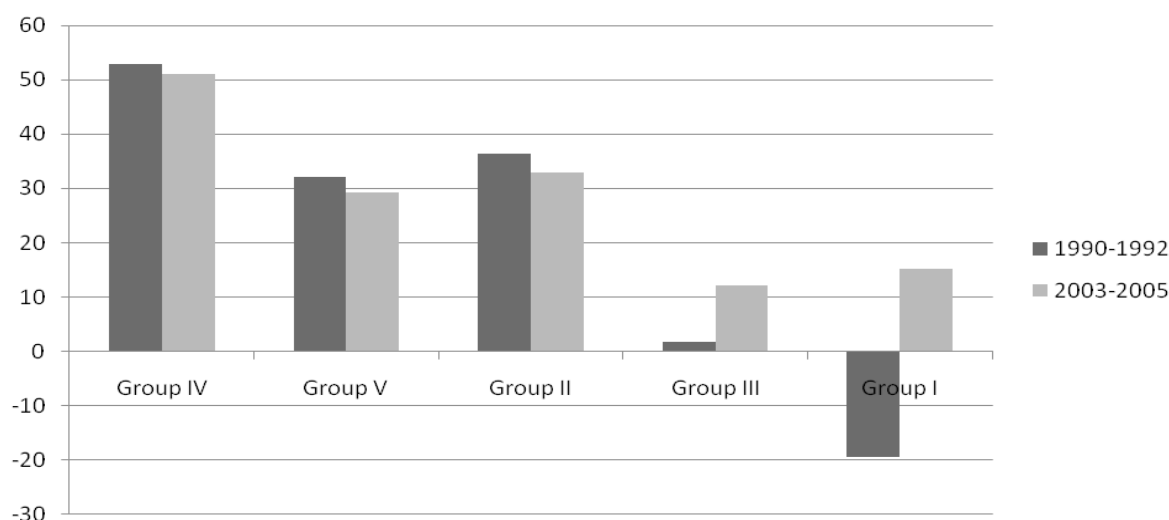
Source: author's research on the basis of the data: OECD, Paris, Agricultural Policies in Non-OECD Countries. Monitoring and Evaluations 2007: OECD, Paris, www.stats.oecd.org/wbes/

Figure 2. **The changes in the support level measured by PSE coefficient in distinguished groups of states**

the lowest level of GNI per capita, a high diversity of domestic incomes and also surpluses in agricultural goods trade. Group IV (the USA, Norway, and Switzerland) showed the highest level of national income per capita close to the balance with the trade balance of agricultural goods. The last group was the EU-15, Australia, Japan, and Canada.

The transformations in the amount and structure of retransfers to the agricultural sector

In 1990-2006 there was a distinct reinforcement of determinants connected with the amount of national income per capita, the disproportion of

its division and the role of deficit in the trade of agricultural produce having impact on the amount of possible support of agricultural incomes measured by PSE coefficient. There was, however, the reduction of significance of the resources' amount impact involved in the agricultural sector. The reallocation meant the reinforcement of protecting the level of incomes for regard of location determinants and globalisation effects. The essential changes were made in the structure of support and the role of individual entities in financing. The basic mechanism of impact was the price support throughout the whole analysed period, the highest in two extreme groups (IV and I – Figure 2). The share of this element was

at high level and remained on average above 60% of PSE indicator. The remaining elements also did not show a greater relation with reference to Gini level (Table 3). However, in highly developed countries it is possible to discover the rise of significance of the instruments decreasing the implementation of means of production. It was associated, to a great extent, with the increase of environmental awareness and the implementation of diversified agrarian-environmental programmes, within which there was the decrease of a part of expenditure and leaving an industrial model of agricultural development whose costs were incurred by taxpayers (Czyżewski A., Kułyk P., 2005). Moreover, the amount of payments restricting consumption was connected with the payments to production, which is proven by the speculation concerning the mechanism of existing relations.

The gradual observed decrease of the significance of price impact, in particular in highly developed countries (where on the whole it was the highest – Groups IV and V). The average share of MPS in the total amount of PSE has decreased by about 16.37 percentage points between the years of 1990-1993 and 2003-2005. While in total retransfers to agriculture (TSE) by 2.77 points in total. It does not prove substantial liberalisation of the agricultural sector, but essential changes in the support structure. The increase was observed in transfers from taxpayers to agricultural producers, but also to consumers. It allowed maintaining a high level of support in highly developed countries as well as reinforcing the support level in developing countries and simultaneously marking high levels of economic growth, which ensured the possibilities of retransferring the resources to the agricultural sector from other areas of economy. It enabled the expansion of net exporters on the food market (Brazil, Australia) having distinct cost and environmental advantages. Such transformations enhanced their positions on the global market. Simultaneously, however, a permanent policy of supporting the incomes of farmers by consumers and price maintenance was established. In the period of 1990-1995 in many less developed countries it was possible to observe substantial diversity in transfers between consumers and agricultural producers, they were often of a negative nature and consumers themselves were the main beneficiaries of those transfers. The decrease of price differences was also the outcome of the increase of price support in less developed countries. In the period of 2003-2005 a total level of transfers from consumers to producers decreased, while stabilised in less developed countries.

There was an observable increase of transfers from taxpayers to agricultural producers and consumers in total transfers in the whole examined period by

about 7.74 points. Moreover, the rise of transfers' value flowing from agricultural producers to budget took place, as the effect of increasing burdens for the budget, which corrected transfers to arable farms. Such transformations were initiated by the agreements in the international arena as well as decreasing the role of agriculture in creating national income according to the thesis that decreasing the share increases the expenditure for a particular sector of economy (Tomczak F., 2003). The main determinant of the reduction of support system in highly developed countries was structural transformations taking place in arable farms. As a result of a funnel effect, that is reducing the expenditure for the resources (land in particular) (Kułyk P., 2008), the intensity of managing them decreased and led to transferring a part of payments to the payment of extra-productive external effects with a simultaneous use of scale effects, including the absorption of retransfers.

The protection was provided by a high level of GDP per capita amounting on average to USD 25200 in 2001 and 2003, and determining a low share of expenditure for food in the income of arable farms – amounting to 13.2% (OECD 2004). It contributed to the occurrence of substantial disproportion between the domestic supply and demand for farm and food products at the level of 129.43% (OECD 2004). The phenomenon was implied by a high burden of consumption with a payment system during the rise of stimuli towards the growth of supply.

A distinctive feature for all observed areas was the reduction of the support amount in a production unit, which means that the supply adjustments were more subject to market pressure. It does not mean, however, the reduction of the support amount in absolute terms, but that its increase was slower than the growth of production (in 1986-2005 by 26.68 points in total). The faster rise of consumption was observed, in particular in highly developed countries where it outdistanced the growth of production on the domestic market. This process was associated with the occurrence of two phenomena: a better balance of domestic markets in highly developed countries and simultaneous increase of autarchy in developing countries, including in particular big economies which had run a deficit so far: China and Russia. Simultaneously there was the decrease of price support, which improved the price competitiveness of farm and food products. The process of globalisation extorted the reduction of prices and supported approaching their level between individual regional markets, in accordance with the right of one price.

The conducted analysis of relations between the streams of retransfers' flows revealed numerous universals. The amount of payments was not dependent on the amount of incomes and their distribution

Table 3

The correlation matrix between basic elements of the support structure and GNI per capita

Variable	GNI PPP per capita	GINI coefficient	Trade balance of agricult. produce	PSE	MPS	Transfers from consumer to agricult. prod.	Transfers from taxpayers
Trade balance of agricultural produce	0.1585	-0.0352	1				
%MPS	-0.2111	0.0113	-0.2814	-	1		
Transfers from consumer to producer	-0.2148	-0.0562	-0.4286	0.4560	-	1	
Transfers from taxpayers	0.2088	0.0697	0.4008	-0.4881	-0.8432	-0.9293	1
Payments to budget	0.1227	0.0013	0.2768	-0.1688	-0.3435	-0.6578	0.3332
Average	20593.28	36.95	1.24	23.30	52.47	50.83	56.71
Variable coefficient	61.89	25.67	71.65	86.81	41.43	54.06	38.70

These results were eliminated where the occurrence of auto-correlation was discovered.

Source: author's research on the basis of the data: World Development Indicators, World Bank, Washington, 1992, 2004, 2007, www.worldbank.org/data, OECD, Paris, Agricultural Policies in Non-OECD Countries. Monitoring and Evaluations 2007: OECD, Paris, www.stats.oecd.org/wbes/

(Gini – Table 3), but gradual approaching of the structure between distinguished groups of countries was observed. The diversifying factor, however, turned out to be the changes in the trade balance. The improvement of the balance was correlated with the reduction of costs incurred by consumers (therefore, the improvement of price competitiveness) and the replacement of this transfer with transfers from taxpayers, which allowed maintaining the amount of total support increasing the export possibilities at the same time. Such operations concerned first of all developed countries (Group II and V). In case of permanent importers it did not bring expected results (e.g., Japan, South Korea). The exchangeability between transfers from consumers for taxpayers, as the entities gradually taking over the burden of support maintenance, was a distinctive determinant for the analysed period. It enabled the consideration of extra-production environmental values connected with a charge for external effects and the common good.

Conclusions

Interventionism is a distinctive element of a contemporary agricultural policy. The complexity of solutions and the correlation of the external partners' conduct make the implemented solutions impossible to be explained by only income conditions and the level of economic development.

1. If we classify the states according to the development level it shall be possible to observe a strong relation between particular groups and the level of development, however, not with reference to individual states. The greatest changes can be observed in the least developed countries (among those accepted to be examined). The achievement of the high economic growth was a determinant not only initiating the reallocation of resources and their outflow to more effective applications, but also increasing the level of retransfers to the agricultural sector. Such an operation would allow reducing disproportions in the support level between particular groups of states. It is necessary to observe, however, that the conducted analysis referred to the countries which achieved favourable effects in the process of globalisation and for regard of the limitations in the access to the data about the support system the less and the least developed countries were not taken into consideration, including in particular African states.

2. The process of globalisation shaped a wide range of interesting tendencies in the system of agricultural support in the period of 1990-2005. Except a slight reduction of relative amount of support and its approaching between particular groups of the analysed states, it was also possible to observe the tendencies towards a permanent initiation of transfers from the remaining sectors of economy, including consumers to agriculture. The mechanism of retransferring incomes to agriculture and the consideration of price maintenance as well as other instruments underwent consolidation.

3. The factor determining the support level turned out to be first of all Gini per capita quantity and the degree of its diversity, however, if we take the structure into consideration, the fundamental significance was attributed to the changes in the trade balance and the maintenance of export as well as wider consideration of the effects created by agriculture through the indexation of its resources.

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Bank Solvency and Capital Adequacy: Evidence from Banks in Poland during 2001-2006

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Abstract

The paper presents the solvency issues with respect to banks in Poland and other countries of the European Union. Empirical data show that the banking sector in Poland over 2001-2006 was in a favourable situation in terms of solvency. In 2006 Poland belonged to a group of EU countries with the highest levels of the solvency ratios. Under the Polish regulations, the bank's solvency ratio must not fall below 8%, and in line with the recommendations of the Polish market regulator it should be higher than 10%. In the years 2001-2006, the solvency ratios, both in the commercial banks and the cooperative banks in Poland, on average were above the regulatory minima. The research results demonstrate that the optimal solvency ratio for those banks was at the level of 14%. Findings of the multiple regression analysis suggest negative relationship of the solvency ratio with the level of return on assets (ROA), but positive impact of bank own funds-to-total assets ratio and net loans-to-total assets ratio on the solvency ratio in Polish cooperative banks.
Key words: cooperative banks, commercial banks, bank solvency, solvency determinants, Poland.

Introduction

The issue of solvency and capital adequacy is very crucial to the stability of financial markets. Currently, bank solvency and capital adequacy in the European Union countries is governed by the provisions of the New Basel Capital Accord. The problem of solvency is particularly important today when banks are affected by the recent world wide financial crisis. Their difficult financial situation may have an adverse impact on financing the development of agriculture and rural development.

World literature devoted to solvency issues has been well-developed. It has focused mainly on the bank capital regulation connected with risk and banking system stability (Kahane Y., 1977; Kareken J.H & Wallace N., 1978; Koehn M. & Santomero A.M., 1980; Kim D. & Santomero A.M., 1988; Rochet J.C., 1992; Blum J., 1999; Diamond D. & Rajan R., 2000; Santos J., 2001). The solvency analysis is often presented in connection with bank deposit insurance/safety and bank financial liquidity (Diamond D. & Dybvig P., 1983; Marini F., 2003; Decamps J. et al. 2004). Some works put emphasis on the solvency problem during a financial crisis (Morrison A. & White L., 2005). Theoretical analysis of the solvency has been made among others by Revell J. (1975), Bhattacharya S. and Thakor A.V. (1993), Thakor A.V. (1996), Berger A. and others (1995), Santos J. (2001) and Van Hoose D. (2007). Amongst writings on bank solvency and capital adequacy, there is also literature addressing issues of their macroeconomic implications (Blum J. &

Hellwig M., 1995) as well as of impact of the New Basel Capital Accord (Basel II) regulations on bank behaviour (Dangl T. & Lehar A., 2001; Decamps J.P et al. 2004).

The research aims and methods applied

The primary aim of this study was to assess the levels of solvency and capital adequacy for the surveyed cooperative banks in Poland, and to identify external and internal determinants impacting bank solvency and capital adequacy.

In the framework of the research, the following tasks were undertaken: (i) elaboration of theoretical and empirical concepts on the bank adequacy and solvency that allow research; (ii) application of the solvency and adequacy measurement techniques to banks in Poland; (iii) ascertaining the banks situation regarding solvency, and (iv) extraction of internal (bank-specific) and external factors determining banks' solvency.

In the study, three hypotheses have been proposed and then tested:
1. Geographical service area of the cooperative banks affects their solvency levels.
2. There are some bank specific (internal) factors that have a statistically significant influence on the levels of solvency ratios of the cooperative banks.
3. A rise in the solvency ratio reduces bank efficiency.

Conceptual framework to this study relies upon the selected theories on the subject presented

in recent economic and financial literature all over the world. Additionally, different kind of existing legislation addressed bank solvency and capital adequacy is taken into consideration. The analysis is grounded on theoretical, statistical and case study literature. Methods of literature survey included journal holding index search, books, and Internet searching.

The empirical study is conducted using the example of ten cooperative banks in Poland over the years 2001-2006. The basic bank specific variables used for the sample of the cooperative banks in order to calculate solvency ratios were drawn from bank balance sheets and other annual financial statements. For comparative purposes, there are also applied data on the solvency and adequacy in the commercial banking sector, the cooperative banking sector and the entire banking sector in Poland, which are obtained from the National Bank of Poland.

The effects of both internal and external determinants on bank solvency and capital adequacy were statistically examined by the use of Analysis of Variance (ANOVA). The significance of the mean differences was tested by applying LSD method. Backward-selection stepwise regression was employed in order to build up an econometric model of internal determinants of bank solvency. The set of explanatory variables were examined at each estimation step to determine the significance levels for all remaining explanatory variables if one variable was removed. The coefficient of determination was employed to assess the goodness of fit. At each step, the variable that had the smallest impact on model R-squared was eliminated from the equation.

The expected results of this research will allow the evaluation of the solvency situation of Polish cooperative banks in the sample. In addition, the results will make it possible to identify stimulants and destimulants of the banks' solvency and capital adequacy.

Results and discussion

1. Differences in solvency levels between the cooperative banks in the period 2001–2006

The level of solvency ratio depends on several factors. It is affected not only by the bank strategy and the way the bank is managed but also by external factors determining profile and range of bank activities. Additionally, the changes in legal rules have considerable influence on bank solvency levels.

Based on unrepresentative sample of 10 selected cooperative banks from Poland, bank solvency during the period of 2001-2006 was examined here. The results of the estimations show that average ratio of available versus minimum required capital (solvency ratio) during the analysed period was at 18%, with its lowest levels (6.54%) in 2002 and the highest (48.25%) in 2005 respectively, as Table 1 shows. Since 2002, the solvency ratio has had a steady tendency to rise. However, between 2001 and 2002 the average solvency ratio for all surveyed banks fell (by 136 base points) probably due to the change in the solvency ratio calculation's methods under the Polish banking law. The implementation of new regulations with regard to additional capital requirements to cover market, credit and operational risks resulted in an increase of the total required capital and consequently in the reduction of the solvency ratio. In the following years, the ratio was growing to reach relatively high level (19.2%) in 2006.

Table 1

The level of solvency ratio in the selected Polish cooperative banks in the years 2001-2006

Years	Number of banks	The average value of the solvency ratio (%)	The standard error of mean (%)	The minimum value of the solvency ratio (%)	The maximum value of the solvency ratio (%)
2001	10	18.12	3.43	7.69	41.38
2002	10	16.76	3.22	6.54	34.76
2003	10	17.27	3.08	8.68	37.63
2004	10	17.83	2.82	8.28	32.71
2005	10	18.90	4.09	9.87	48.25
2006	10	19.21	4.19	9.36	46.02
Total	60	18.01	1.38	6.54	48.25

Source: authors' own research

2. Solvency levels - the sample banks compared to the overall banking sector and the cooperative banking sector in Poland
2.1. The surveyed banks versus the cooperative banking sector

The surveyed cooperative banks' solvency ratios were compared favourably to that of the whole cooperative banking sector (Figure 1). In the period 2001-2006, the solvency ratio of the sample banks (18.1%) compared to the sector (14.05%) was by 4 percentage points higher on average. Similar relations were observed for all individual years. The lowest

difference in the solvency ratios between two groups of the banks was in 2003 (307 base points); whereas the highest in 2006 (521 base points).

The solvency ratio distribution was more polarised in the selected banks than in the cooperative banking sector (Table 2). The proportion of all cooperative banks that during a six-year period did not reach minimal required solvency ratio was merely 0.72%; whereas in the case of sample banks it was 6.67%. On the contrary 7.25% of all the cooperative banks and 18.33% of the sample banks worked out the solvency ratio exceeding 30%. The solvency ratios for the
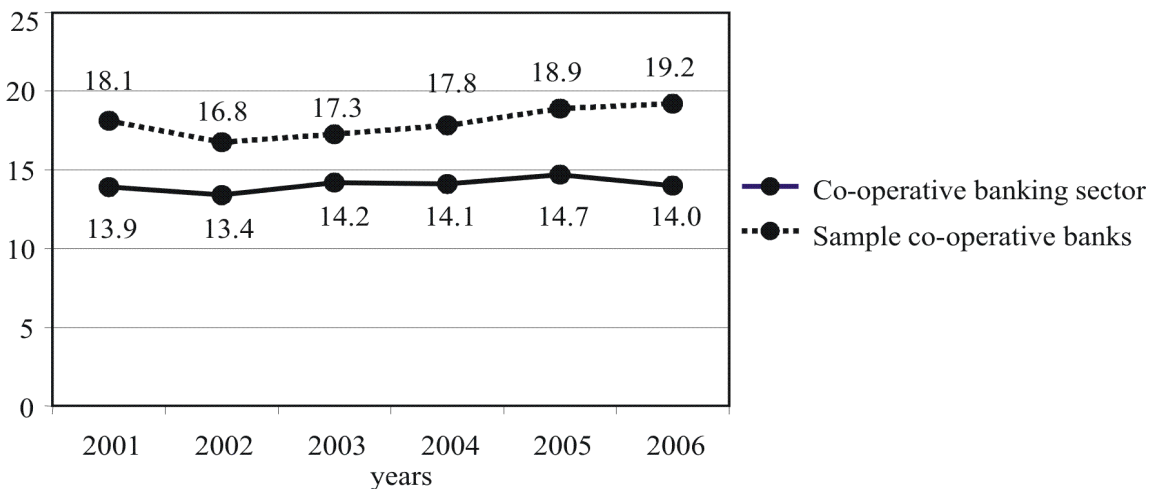
Source: author's calculations based on the data from the Polish Financial Supervision Authority

Figure 1. **Average solvency ratios for the cooperative banking sector and
sample cooperative banks in 2001-2006 [%]**

Table 2

Distribution of the banks by solvency ratios (aggregate values for the years 2001-2006)

Solvency ratio (%)	Banking sector		Commercial banks		Cooperative banks		Sample of the banks	
	Number of banks	Share (%)	Number of banks	Share (%)	Number of banks	Share (%)	Number of banks	Share (%)
≥ 30	318	8.03	56	16.23	262	7.25	11	18.33
<15; 30)	1816	45.86	126	36.52	1690	46.75	18	30.00
<12; 15)	833	21.04	75	21.74	758	20.97	6	10.00
<8; 12)	953	24.07	74	21.45	879	24.32	21	35.00
Total ≥8	3920	98.99	331	95.94	3589	99.28	56	93.33
<2; 8)	28	0.71	6	1.74	22	0.61	4	6.67
<0; 2)	3	0.08	2	0.58	1	0.03	0	0.00
<0	9	0.23	6	1.74	3	0.08	0	0.00
Total <8	40	1.01	14	4.06	26	0.72	4	6.67
Total	3960	100.00	345	100.00	3615	100.00	60	100.00
Average	14.07	-	14.33	-	14.05	-	18.01	-

Source: author's calculations based on the data from the Polish Financial Supervision Authority

sampled banks did not follow a normal distribution: the median values of the ratio <12-15%) and the mean (18.1) are not equivalent. As the mean is greater than the median, and the median is greater than the mode <8; 12), the distribution of the solvency ratios for those banks is right-skewed. For all cooperative banks, the distribution is rather skewed to the left.

2.2. The surveyed banks versus overall banking sector in Poland

Empirical studies have found that during all period of six years the average solvency ratios for the sampled banks were considerably higher than for the whole banking sector in Poland (Figure 2).

The difference in solvency ratio levels ranged from 307 (in 2003) to 601 (in 2006) base points.

Over the period 2001-2005, the pattern of change in the development of the solvency ratio in the surveyed banks showed similarity to that observed in the entire banking sector. In 2002, the levels of average solvency ratios decreased but in the following years they improved. In 2006, the solvency ratio for overall banking sector increased to 19.2%, while for the sample cooperative banks it dropped to 13.2%

The frequency distribution of the solvency ratios reported in Table 2 shows more similarities between the sample banks and the commercial banking sector than between the sample banks and the cooperative banking sector. In the case of both the commercial banks and the surveyed banks relatively large number of banks was found in the highest solvency interval and relatively small number in the lowest solvency intervals (below 8%). One main difference between the two groups lays in the frequency of the banks with

the solvency ratio below 2% being observed only for the commercial banks.

The level of solvency ratio gives an information about the ability of a bank to pay its liabilities in due time, thus providing the information about deposit safety. Capital adequacy ratios measure the amount of a bank's capital expressed as a percentage of its risk weighted credit exposures. Applying minimum capital adequacy ratio (in Poland 8%) serves to protect depositors. Moreover, capital adequacy ratio shows resistance of the banking system to external and internal shocks and to business cycle fluctuations. The banking system in Poland seems to be stable taking into account the solvency ratios and capital adequacy ratios. The banks have capital that enables them to cover potential losses resulting from the worsening of the credit portfolio quality.

2.3. Cross-country comparison of the bank solvency ratios

The average solvency ratio for the sample cooperative banks in Poland as compared to the results obtained by banks in other EU countries in 2006 was exhibited in Figure 3.

Regardless of the fact that the research sample of the cooperative banks was not representative of the whole cooperative banking sector in Poland, as they obtained higher average solvency ratio than the sector, their solvency position in 2006 was less favourable in relation to banks in Malta with the EU highest solvency ratio of 22.1%.

It is apparent that disparities in the solvency ratio levels among the EU member states exist. The
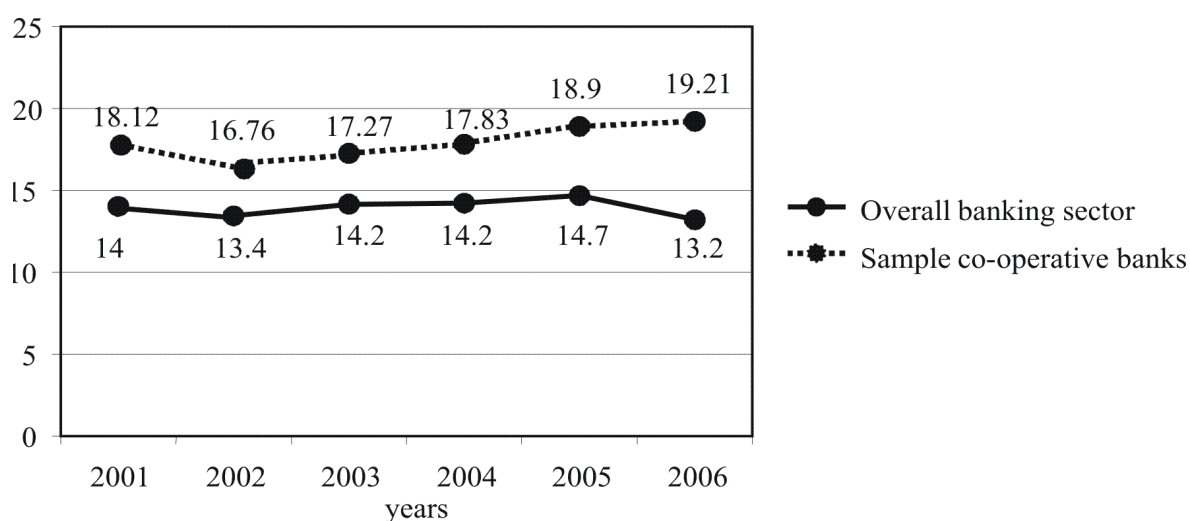
Source: author's calculations based on the data from the Polish Financial Supervision Authority

Figure 2. **Average solvency ratios for the whole banking sector and sample cooperative banks in 2001-2006 [%]**

bank solvency ratios on average were the lowest in Lithuania (9.8%) and Sweden (9.9%). The spread between maximum and minimum ratios reached 12.3 percentage points in 2006. One missing element which could explain differences in value of the solvency ratio between the EU countries might be differences in its measurement. Moreover, European banking is characterised by three distinct ownership structures (public firms, stockholder firms and mutual firms), each with its own objective function and product specialisations (Goddard et al. 2001). This mixture of structures accommodates diversity of economic and social goals that express themselves in different performance and risk-taking motivations.

Overall, Polish banking sector in 2006 showed the average solvency ratio which was quite satisfactory but below its levels in Malta, Finland, Luxembourg, Bulgaria, the Great Britain and Romania. However the banks from the Czech Republic and Hungary the states with similar to Poland development experiences achieved considerably lower solvency ratios than Poland's banks.

It is unclear that banks in more developed states perform better in regards to the solvency ratios. Banks in the most prosperous EU countries exhibited a high or a low rate of the solvency. Either there is no general principle helping to explain the solvency ratios for the new EU member states.

3. The regional pattern of the bank solvency

Banks, like other organisations, cannot isolate themselves from the external economic and social environment. They have to take into account not only the government policy, regulations, and macroeconomic fluctuations but also the specifics of the region of bank's location and its activities as well as micro-economic factors, all together influencing bank performance. Banks are indirectly affected by their customers, local competitors, and local cooperating institutions.

The customer needs and preferences, competition possibilities and improvement of institutions supporting banks' activities depend on the geographic location characteristics, and regional or local development. The highest demand for bank services remains in the fastest developing areas. The highest density of the bank services, thus the strongest competition among banks and other financial institutions is within high urbanised areas.

The sample of the cooperative banks was subdivided into 2 subgroups of banks, each representing one of two differentiated parts of Poland: the Eastern and the Western (Poland "B" and "A" respectively). The banks which represented Poland "B" (i.e., slower developing, agricultural regions with poor physical and transport infrastructure and experiencing relatively high unemployment) were operating in Podlaskie, Lubelskie and Swietokrzyskie
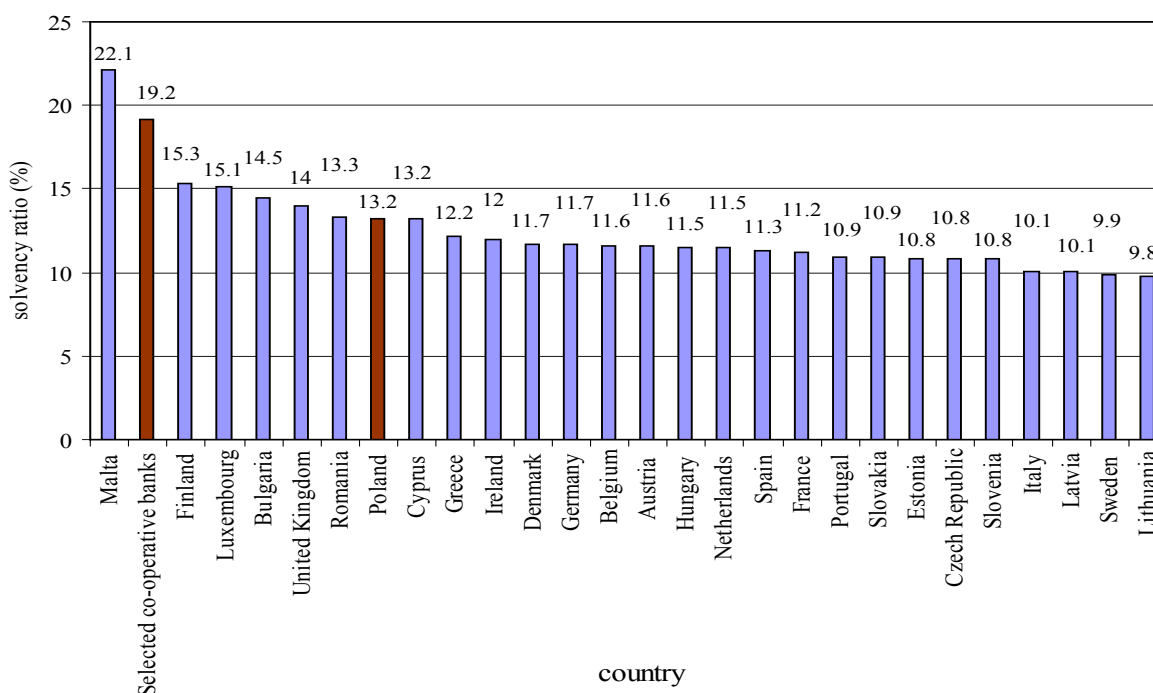
Source: author's compilation based on the European Central Bank (2007), p. 73-74.

Figure 3. **Solvency ratios for the banks in the EU countries in 2006**

Table 3

The levels of solvency ratio for the cooperative banks in the sample by the region

Provinces (Voivodships)	Number of banks	The average value of the solvency ratio (%)	The standard error of the estimate (%)	The minimum value of the solvency ratio (%)	The maximum value of the solvency ratio (%)
Podlaskie	18	10.90	0.70	6.54	16.78
Lubelskie	6	23.67	2.00	17.57	29.37
Swietokrzyskie	6	32.45	1.04	29.82	36.32
Eastern Poland	**30**	**17.76**	**1.75**	**6.54**	**36.32**
Lodzkie	6	9.98	0.13	9.42	10.23
Slaskie	12	28.34	3.72	15.74	48.25
Wielkopolskie	6	9.09	0.44	7.69	9.88
Mazowieckie	6	15.58	0.98	12.61	18.99
Western Poland	**30**	**18.27**	**2.15**	**7.69**	**48.25**
Total observations	**60**	**18.01**	**1.38**	**6.54**	**48.25**

Source: authors' own research

provinces. The second group covers the banks from more industrialised and urbanised regions with higher socio-economic development, which were functioning in Lodzkie, Slaskie, Wielkopolskie and Mazowieckie provinces (Table 3).

To indicate the level of bank's solvency, the Cooke Ratio calculated according to Basel I capital adequacy standards (Hall M., 2001), which is widely known as the risk asset ratio (RAR) or capital adequacy requirement (CAR) was calculated for those banks. The ratio measures the adequacy of a bank's capital in relation to the risk-adjusted loans and advances (risk-adjusted assets) it makes.

As concerns the eastern part of Poland, the cooperative banks from Podlaskie province had the lowest solvency ratio (6.5 %) while the banks from Swietokrzyskie obtained the strongest solvency ratio, well above 35% (Table 3). Among "Eastern" banks the maximum difference in the ratio levels was 29.8 percent points, whereas among "Western" banks this difference reached 40.6 percent points. Generally, the solvency ratios for the banks carrying on their activities in the Western Poland were better, with its minimum average value of 7.7 (Wielkopolske province) and maximum average value of 48.3 (Slaskie province).

4. Relationship between solvency and other financial ratios for the investigated banks

The two major dimensions of bank performance are risk and profits. The backward elimination multiple regression procedure was applied in order to establish

the magnitude and direction of the effect that different financial indicators had on the bank solvency ratio. In total, 37 independent variables of interest were used in the regression model specification. Table 4 summarises the preferred regression model assessing the impact of only eight financial indicators being found statistically significant in explaining solvency ratio and clearly of the greatest importance for its level.

The regression equation thus becomes:

$$y = 2.6788 - 1.3381x_1 + 0.9774x_2 - 2.7134x_3 - 0.1015x_4 - 0.021x_5 + 1.4414x_6 - 1.4655x_7 - 1.1739x_8$$

First of all, a positive relationship of the solvency ratio with the bank own funds-to-total assets ratio and with net loans-to-total assets ratio was noted, as expected. The share of own funds (capital and reserves) to total assets is a proxy of bank capital adequacy and should reduce the likelihood of bank failure. The loan portfolio is a major source of risk that might be controlled by limiting the loan-to-asset ratio.

On the contrary the solvency ratio was negatively related to the ROA (measure of the operational efficiency or operational profitability), the bank deposits-to-total assets ratio, the total liquidity ratio (current assets divided by current liabilities), the amount of liquid assets and readily marketable assets-to-current deposits ratio, the net loans-to-deposits ratio, and the ratio of loan loss provisions to total

Table 4

Impact of the selected indicators of bank performance on the levels of solvency ratio in the co-operative banks in Poland (the regression results)

Independent variables	Estimated coefficients	Standard error	T-statistics	P-value
Constant	2.6788	0.21	12.70	0.0000
x_1 – Return on total assets ROA (%)	- 1.3381	0.53	2.51	0.0163
x_2 – Own funds-to-total assets ratio (%)	0.9774	0.33	2.92	0.0057
x_3 – Deposits-to-total assets ratio (%)	- 2.7134	0.24	11.33	0.0000
x_4 – Total liquidity ratio (%)	- 0.1015	0.04	2.30	0.0267
x_5 – Ratio of liquid assets and readily marketable assets to current deposits	- 0.0210	0.00	5.67	0.0000
x_6 – Net loans-to-total assets ratio (%)	1.4414	0.25	5.83	0.0000
x_7 – Net loans-to-deposits ratio (%)	- 1.4655	0.20	7.21	0.0000
x_8 – Loan loss provisions-to-total assets ratio (%)	- 1.1739	0.33	3.60	0.0008
Dependent variable (y): solvency ratio (%)				
R-square = 96.57 %				

Source: authors' own research

assets. The ratio of provisions for bad debts to total assets as well as the liquid assets over deposits and the total liquidity ratio (both indicators of liquidity adequacy) can be used as risk measures. The two latter reflect bank soundness; the higher liquidity ratio, the lower the probability of bank failure.

Interestingly, bank solvency was negatively related to efficiency. It means that a bank may be solvent regardless of making losses if equity is still positive (Cadet L., 2006).

Conclusions

1. The solvency ratios of Polish banking system in the years 2001-2006 remained on average well above the minimum regulatory levels. In 2006, Poland's relative position within the EU-27 countries based on banks' solvency ratio level was good, as Poland with the ratio of 13.2% ranked sixth (ex-aequo with Romania and Cyprus). The cross-country variation was quite large in this respect, as the ratio ranged from 9.8% in Lithuania to 22.1% in Malta.

2. Empirical evidence from 60 observations of the cooperative banks over the period of 2001-2006 supports the hypothesis that the bank solvency is significantly linked to different indicators of bank performance. However, indeed 8 out of 37 variables were statistically significant in the fitted regression model. Higher levels of own funds in relation to total assets as well as higher net loans

in relation to total assets were associated with stronger solvency ratios. The solvency ratio was negatively related to liquidity adequacy and loan loss provisions ratio.

3. The study also found support for the hypothesis that a rise in the solvency ratio reduces bank efficiency (profitability) as measured by the return on assets (ROA). This results from the fact that more profitable assets are burdened with higher risk, so they negatively influence the bank solvency.

4. Geographical service area of the cooperative banks in the sample affected the solvency levels. The Cooke ratios, taken as a solvency measure, were on average highest for the banks in Swietokrzyskie province (32.5%) but the lowest in Wielkopolskie province (9.1%). Generally, the cooperative banks that have operated in the Western Poland, which is the better developed part of the country, had slightly more favourable solvency ratios compared to the banks in economically backward, Eastern part of Poland.

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Research on Changes of Equity as an Estimate Method of the Healthcare Functioning - Part of the National Economy

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Abstract

The research regarding functioning of the healthcare system is carried out in each country. The economic analyses conducted within the healthcare system are aimed at ascertaining the changes in order to rationalise the existing situation or introduce changes. Those aim at improving the general health of the society that either directly or indirectly influences development of the whole national economy.
All sorts of materials and data in reference to the functioning of the healthcare system also including financial statements are used in this research.
Key words: average rate of changes, dynamic, health care, proper capital, Theil factor.

Introduction

A number of contemporary studies on healthcare focus on the economic analyses of the healthcare functioning in particular national economies. The revenue and the unemployment rate are presently indicated as the main determinants that influence functioning of the healthcare system. Low level of unemployment causes the people to be much calmer about their and their families' existence, and moreover, being employed (i.e., having an income), they constitute a source of the healthcare financing. Lack of unemployment also affects the drop of civilisation diseases, such as neuroses, heart strokes, etc.

However, the employment not always limits the above mentioned diseases. The growing disproportion of incomes increases social dissatisfaction, especially in those who earn less, and henceforth the chance of an incidence of the diseases of nervous and circulatory systems.

Limitation of the above mentioned problem resolves itself to the efficiently functioning healthcare system. In order to be able to analyse the healthcare system, and particularly to assess its functioning, it is necessary to define the notion of the healthcare system. Włodarczyk (1996) indicates that the healthcare system can be considered in two senses, i.e., real and conceptual. The former sense refers to the system as the whole, as constituted by the entire social system, of which the healthcare is an element. The latter considers the healthcare as a model reflection of reality.

The assessment of the financial aspect of the healthcare functioning is a very important element of the healthcare study in all the states. To a large extent such studies resolve themselves to the search of the costs of the healthcare functioning, ignoring their causes as well as the attempts of their elimination.

The financial reports of Provincial Branch Offices of National Health Fund, and previously the Regional Health Service Offices are perfect data sources for the analyses of the changes in the healthcare system illustrating its efficiency.

Detailed economic and statistic analyses can be conducted on the basis of the available data.

The aim of this paper is to present changes in the equity of the Wielkopolski Branch Office of National Health Fund in the years 2003 - 2006, and the Wielkopolski Regional Health Service Office in the years 1999 - 2003.

The equity constitutes the quality of economic resources input by the owners and the assets worked out by the enterprise during its functioning. The equities are divided into:
–   consigned assets,
–   self-finance assets.

Consigned assets are the financial and real inputs of the enterprise owners. Self-finance assets emerge from the achieved profit retained in a certain enterprise and/or other sources characteristic for the actual activity.

The equity serving financing and/or development of the already existing enterprise derives mainly from the retained profits. The reserves and the net profit in the current year are considered as the supplement of the equity. Creation of reserves serves as the safeguard against temporary financial problems including those resulting from the liabilities due in time.

Basic assets constitute a safeguard against actual and future creditors. In general opinion, the size of the

equity should be maintained at an appropriate level to enable an increase of the investment activities, necessary developmental projects and/or a raise of a loan.

Methods

Application of ratios for the investigation of economic changes is highly significant, enabling an illustration of the alterations over the studied periods as well as making necessary decisions to improve the existing system and/or its change.

A ratio constitutes a relation of a variable quality of particular unit or an average quality of a variable in the studied group of entities, to the quality of this variable in another statistical entity and/or an average quality of this variable in the group of entities or the entire community.

The research uses individual ratios within which one can distinguish:
− constant ratios,
− mobile ratios.

Constant ratios are applied to the ordered qualities, e.g., due to the temporal succession. It means that having the data referring to the temporal sequence one can calculate positive or negative difference between the quality of a certain variable in a particular period or a moment and the quality in another selected point of time.

The constant ratios are calculated according to the formula:

Individual constant ratios

$$I_s = \frac{y_n}{y_o} \cdot 100$$

where:

y_n − size in the investigated period,
y_0 − size in the period assumed as basic (basis for comparisons),
n − number of periods.

The calculated qualities are presented as percentages. Therefore, in order to state the difference between the qualities in the investigated period and the similar qualities in other periods of the considered variable, the quotient should be multiplied by 100.

If a change of the phenomenon is studied over time, then the individual mobile ratios are applied to the data referring to the quality of this variable in the successive periods.

These ratios are calculated according to the formula:

Individual mobile ratios

$$I_r = \frac{y_n}{y_{n-1}} \cdot 100$$

where:

y_n − size in the investigated period,
y_{n-1} − period preceding the investigated one,
n − number of periods.

The mobile ratios for the selected temporal unit allow to state how much the quality of the variable in the selected temporal unit was higher than the quality of the variable in the preceding temporal unit.

The ratios calculated on the basis of the variables from particular temporal units can be used in the setting of an average rate of changes in the studied temporal interval.

The average rate of changes is determined on the basis of the mobile ratios, as a geometric mean of those ratios:

$$\bar{I} = \sqrt[n-1]{I_{r1} \cdot I_{r2} \cdot ... \cdot I_{rn}}$$

where:

$I_{r1}, I_{r2}...I_{rn}$ − individual mobile ratios.

This informs about average changes of the investigated sizes in the entire, investigated temporal interval.

In order to illustrate the changes, a forecast can be made for the successive years of National Health Fund, Poznan Branch Office. The adaptation models can serve as a research tool.

They are used for an illustration of the endogenic and predictive variables. They do not focus on the cause-effect mechanism of the variable development. They can be used in the case when the variable is characterised by trend deflections and irregularity. The forecasts reckoned in this way are very accurate.

High flexibility of the models and their adaptive capability render their usefulness for the forecasting, particularly when the model of developmental trend is preferred in the prediction process. The models of the exponential smoothing have been created to reduce the forecasts dependency upon the disturbances. They allow making successive forecasts on the basis of the data from the preceding periods. The Brown's exponential smoothing model is one of such models (Kukuła 2004).

The first step in the setting of the forecast by means of the Brown method is the setting of the

smoothed qualities for the smoothing constant a, which amounts to 0.1 - 0.9, and the successive stage is the choice of the smoothing constant, for which the smoothed sequence is the most compatible with the empirical sequence. The calculation is done by means of the following equation:

$$m_t = \alpha y_t + (1-\alpha)m_{t-1}$$

where:

m_t — smoothed quality for the period t,

m_{t-1} — smoothed quality from the previous period,

y_t — observation,

α — smoothing constant.

Consequently one can set a forecast for the period T .

The forecasts are set by means of the equation:

$$y_T^P = m_n + h(m_n - m_{n-1})$$

where:

m_n — smoothed value of the last observation,

m_{n-1} — smoothed value of the previous observation,

n — number of the period for which the forecast is set.

There should not be too many periods of the conclusion into the future. Has the third period been overstepped, the order of forecast accuracy diminishes, and the estimated qualities can surpass the permissible error sizes.

The estimation of the forecasts errors is based on the Theil's coefficient, calculated according to the following formulae:

$$I^2 = \frac{\sum_{\tau=1}^{m}(y_\tau - y_\tau^P)^2}{\sum_{\tau=1}^{m}y_\tau^2}$$

The quality calculated according to the formula informs about the average forecast error for the investigated period. The merit of the Theil I coefficient is the possibility of its decomposition to the sum of three coefficients, which individually inform about a different source of errors.

$$I^2 = I_1^2 + I_2^2 + I_3^2$$

The constituents of the Theil coefficient are as follows:

$$I_1^2 = \frac{(\bar{y} - \bar{y}^P)^2}{\frac{1}{m}\sum_{\tau=1}^{m}y_\tau^2}, \quad I_2^2 = \frac{(S_R - S_P)^2}{\frac{1}{m}\sum_{\tau=1}^{m}y_\tau^2},$$

$$I_3^2 = \frac{2S_R S_P(1-r)}{\frac{1}{m}\sum_{\tau=1}^{m}y_\tau^2}$$

where:

$\bar{y}$ — arithmetic mean of the actual qualities,

$\bar{y}^P$ — arithmetic mean of the predicted qualities,

S_R — standard deviation of the actual realisations of the predicted variable,

S_P — standard deviation of the forecasts,

r — linear correlation coefficient between the forecasts and the actual state,

m — number of realised forecasts.

The coefficient adopts the value 0, when the forecasts are accurate in 100 percent. Its value grows with the increase of the difference between the predicted and actual qualities of the investigated variable.

The research was based on the data from the annual reports of the Wielkopolski Branch Office of the National Health Fund and the Wielkopolski Regional Health Service Office; the data comprised the years of 1999 - 2006. They constituted the basis for the forecast of the equity for the years 2009 and 2010.

Results and Discussion

The sizes of the equity in the Wielkopolski Branch Office of the National Health Fund were as follows - Table 1.

The data in Table 1 indicate changes in the equity which resulted from both the organisational changes (reform of the healthcare system in 2003), and those resulting from the changes in the particular years of the healthcare functioning in Wielkopolski Province.

A graphic method was used to illustrate the changes in detail.

Implementing the data in Table 1 one can set the dynamics of changes with the application of both the constant, and the mobile ratios. This research aims

Table 1

Values of the equity of Poznan Branch Office of the National Health Fund

Values of the equity of Poznan branch office of the national health fund	
Years	Values (thousand PLN)
1999	*13 814, 94*
2000	*136 868, 56*
2001	*335 805, 54*
2002	*17 404, 39*
2003	*-86 764, 07*
2004	*7 893, 76*
2005	*9 611, 32*
2006	36 996, 77

Source: author's research based on the balance sheets of Wielkopolski Regional Health Service Office and Wielkopolski Branch Office of the National Health Fund
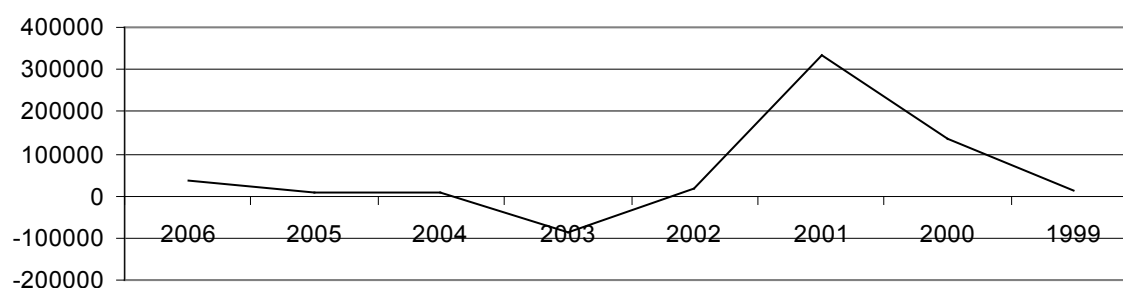
Source: author's research based on the balance sheets of Wielkopolski Health Service Office and the Wielkopolski Branch Office of the National Health Fund

Figure 1. **Values of equity of the National Health Fund, Poznan Branch Office**

Table 2

Constant and mobile ratios of the dynamics of changes

	Investigation of dynamics of changes						
Constant ratios	2006/1999	2005/1999	2004/1999	2003/1999	2002/1999	2001/1999	2000/1999
	267.80	69.57	57.14	-628.05	125.98	2430.74	990.73
Mobile ratios	2006/2005	2005/2004	2004/2003	2003/2002	2002/2001	2001/2000	2000/1999
	384.93	121.76	-9.097	-498.518	5.183	245.35	990.73

Source: author's research based on the balance sheets of the Wielkopolski Regional Health Service Office and the Wielkopolski Branch Office of the National Health Fund

at the presentation of the changes occurring since the implementation of the reform in 1999; hence the reference refers to the sizes from the successive years to the base year (1999) and the comparison between successive years.

The results are presented in Table 2.

A graphical method was used to illustrate the changes in detail.

On the basis of the mobile ratios presented in Table 2, an average rate of changes in the years 1999 - 2006 was calculated as an arithmetic mean. The obtained value 115.111 informs about an increase of the equity, while considering its significance in the functioning of the economic units one can indicate an increasing efficiency.
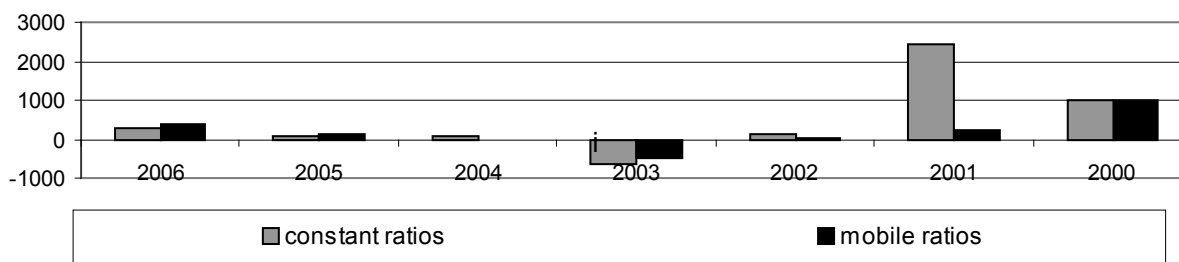
Source: author's research based on the balance sheets of the Wielkopolski Regional Health Service Office and the Wielkopolski Branch Office of the National Health Fund

Figure 2. Dynamics of changes in the equity of the Wielkopolski Branch Office of the National Health Fund

This increase, however insignificant, is constant and therefore one can conclude that the healthcare in Wielkopolski Province indicates a functional improvement and ensures further changes.

On the basis of the data in Table 1 the sizes were predicted for the years 2009 and 2010. Those forecasts amounted to PLN 137338301.3 and PLN 136291355.1, respectively. The Theil's coefficient in the study equalled to I2=0.0123063771.

Moreover, the forecast errors were set at the level, i.e., $I12= 0.0000045288$, $I_2^2=0.0050197262$, $I_3^2= 0.0072821221$.

The first error derives from the forecast weight, the second one results from an insufficient elasticity, whereas the third one results from the misreckoning of the developmental trend.

High qualities of errors can lead to a rejection of the forecast results. It should, however, be stressed that they result from the state interventionism into the healthcare system, including also the financial system. The decision makers, using the administrative-legal instruments can intervene into the healthcare functioning. The lack of the state intervention could cause a decrease of the forecast errors, however the healthcare might then function worse.

Conclusions

The decision makers, using the administrative-legal instruments can intervene into the healthcare functioning. The lack of the state intervention could cause a decrease of the forecast errors; however the healthcare might then function worse. Influence of the state is necessary to provide full and unrestricted access to medical care for all citizens.

In each country health care system to a larger or smaller extent is supervised by the state. The same situation is perceptible in Poland.

Concluding the above discussion one may state that the healthcare as an element of national economy functioning, beside the market regulations demands the state interventionism to function effectively.

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Economic Environment of Foreign Companies Leading the Activity in the Sector of Agricultural Plant Breeding in Poland

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Abstract

The main objective of the article is an attempt to qualify the potential power of the impact of each process reached in the economic sphere of *macro*-environment on the foreign companies of agricultural plant breeding operating in Poland. Investigative material in the present article proceeds from the analysis of sixteen scenarios of states of the environment obtained on four companies representing the foreign plant breeding in Poland. The research includes the four-year period (2004-2008) and was finished in June 2008.

The analysis shows that the economic environment is quite stormy for the foreign companies of the plant breeding operating in Poland, where quick and considerable changes were noticed, and companies themselves are dependent on that environment. Leading factors about potentially very large power of the positive influence is the decline of inflation and, practically correlated with this fact, the process of the decline of the interest rates on loans. Potentially large power of negative influence is characterised by the negative tendency of development in the profitability of the agricultural activity and the depreciation of the value of the Polish zloty (PLN) in relation to euro (EUR).

Key words: economic environment, plant breeding.

Introduction

The company which is oriented on every market opportunities in the literature is described as the nimble company. This type of the company entails the necessary aspects: fastnesses and elasticity in the activity, special intelligence, intuition, smartness, cooperation with the environment, inter-organisational cooperation, communicability, orientation on the customer (also quick responsiveness on his/her needs), and being well-prepared to changes and reconfigurations. Radical changes within the companies, and especially the realisation of the idea of the partnership with all significant stakeholders (and also with competitors) have to permit to the company to strengthen their own competitiveness and to make possible competing using unorthodox methods (Bembenek B., 2006).

Nimbleness is especially useful in the sector which for several years is in the phase of the decline so as the seminal sector of agricultural plants. The characteristic of Polish seminal market is the chaos. The chaos results from both reasons: subjective and objective. One of the subjective factors is the lack of the tradition of the proper running of seminal and breeding companies. The objective factors depend on, among other things, the activity of seminal-breeding companies (Podlaski S., 2005). According to K. Marciniak (2005) one of the reasons that the seminal market is not well-organised is improper

organisation of breeding companies in Poland. Programmes of breeding were placed in large industrial companies which make their market decisions mostly because of immediate need of the sales of big amount of seeds than with the guarantee of receipts from licence fees to cover the breeding costs.

The present view of the Polish breeding-seminal sector is: catastrophically low usage of certified seeds, low quality of seeds, the small quantity of classical seminal head offices forced to competing with farmers which have started the seed production, the competition between seminal companies and breeders on the market of certified seeds, the barrier of assembled licence fees, and the close perspective of the retention of many programmes of breeding after the cessation of their subsidising (Marciniak K., 2005).

Conditions of macro-environment and the sectoral environment caused shallowing of the seminal (Gołębiowski B., 2005) market. Thereby, managers of the companies from the sector of the plant breeding and the seed production were forced to look for the new possibilities of the development, the diagnostics and the stint of the uncertainty and minimising the risk of undertaken decisions which consequently will permit companies to work in the given segment of the market at changes in the foreseeable future ambient conditions.

A valuable way of the expectation of the future is the creation of scenarios, i.e., hypothetical and possible ways of the development of examined objects. These authors do not provide prognoses, because their study results do not affirm these forecasts, they do not point that so it has to be nor choose only way to proceed (Firlej K., 2006).

An essential feature of scenario methods is to take alternative variants into consideration. Scenarios of the future can be often completely divergent. Thereby, the organisation working out a definite strategy of the activity in the future shall consider a lot of alternative variants according to the changes of the environment (Gierszewska G., Romanowska M., 1997).

A most precious feature of scenario methods is the engagement of the managers to the collection of the effort of the stint of uncertainty through creating of potential pictures of the environment in the future and the separation from the proper conventionality of the occurrences extrapolation. Scenario method can be used in the case of creating changes in the environment on the ground of measurable and non-measurable features, mostly with reference to non-contiguous features (Urbanowska -Sojkin E. and others, 2004).

Scenario ideas consist in the preparation of various versions of scenarios describing the situation of economic organisations and condition of the environment, wherein they are going to work in the future (Gierszewska G., Romanowska M., 1997). The importance of relationships of the company with the environment descends from the part of the environment. First of all, this environment determines rules of the game, especially macroeconomic ones. Future possibilities of the development stay just in the environment. The environment has certain potential and it is necessary to relate it to the internal potential of the company. At last, the environment is dynamic, diverse structurally carrying the need of continuous redefine and changes of the relations (Ansoff H.I., 1985).

The sphere of the economic environment of companies, embracing occurrences and economic processes in principle determine the conditions of the leadership in the economic activity, which come out of the economic form and the economic level of the country is one of the segments of the environment. The research over potential force of influence of each factors and processes happening in the environment on seminal (with which cooperate foreign companies of the plant breeding) companies showed that they were especially dependent on processes happening among other things in the economic sphere of macro-environment. In this sphere the environment is heterogeneous and weakly structured (Gołębiowski B., 2005).

The aim of the article is an attempt to qualify the potential power of impact of each factor and process happening in the economic sphere of environment, and the running of foreign companies in the sector of agricultural plant breeding in Poland.

The basic investigative purpose has been achieved by implementation of the following tasks:

1. Strategic diagnosing in the range of reconnaissance of degree of turbulence researched process of economic sphere of macro-environment, and degree of subordination to these processes by enterprises of foreign agricultural plant breeding.

2. Determination of factors on the potential strong power of positive and negative influence on functioning of foreign enterprise of plant breeding in Poland.

The accepted hypothesis that in Poland the majority processes of economic macro-environment spheres make stormy environment, in which significant and fast changes take place, however, only few processes have potentially strong positive or negative influence for foreign enterprises of plant breeding.

It belongs to note that the present article presents only cutting of the author's research concerning macro-environment of sector plant breeding in Poland.

Research methods

The material in the present article proceeds from the analysis of sixteen scenarios of states of the environment obtained on four companies representing foreign companies leading agricultural plant breeding in Poland (about 40% of the total researched population). Two companies are operating in the form of commercial law companies (Ltd), and two - in the form of the representation. The poll embraced persons controlling functions in their own companies.

In the economic environment of the analysed companies eight processes were identified, essential for the breeding-seminal sector in Poland. The identified processes were represented as elements of scenarios in Tables 1, 2 and 3.

Marks, earlier identified processes in the economic environment, in respect to the power and direction of influence, were made by respondents according to the scale of the potential negative and positive power of influence, from -5 to +5 points, according to the pattern:

+ 1 (- 1)- the power of the positive (negative) influence is very small,

+ 2 (- 2)- the power of the positive (negative) influence is small ,

+ 3 (- 3)- the power of the positive (negative) influence is the average ,

+ 4 (- 4)- the power of the positive (negative) influence is large ,

+ 5 (- 5)- the power of the positive (negative) influence is very large.

Marks of the probability of the occurrence of the certain process according to three variants of changes, i.e.,: the height, the stabilisation and the fall, were obtained from: a professor and scientific workers of the Department of Management at University of Agriculture in Szczecin, and a member of the board of the Polish Seed Trade Association.

Source data concerning power of the influence were averaged, and then on their base trends were arranged according to the scenario optimistic, pessimistic and most probable. The research was started in April 2004 and finished in June 2008. The questionnaire researches were repeated annually (always in June of the current year). Repeatability of the research has allowed verifying all data gained earlier and proper correction in led analyses of strategic diagnosing. Inflation rate accepted at the level as of April 2008 (April 2008 to April 2007) reached 4%. For identification of the process exchange rate, the accepted level was taken from May 15, 2008 and reached 3.40 (PLN/EUR).

The detailed procedures and assumptions have been presented and related to the procedure of creation of scenarios of the states of economic environment and carried analysis based on the book written by G. Gierszewska and M. Romanowska (1997, pages 68-72 and 265-275).

Scenarios of the states of the economic environment

Scenarios of states of the economic environment in Poland, for foreign companies from the sector of agricultural plant breeding, make possible to understand the configuration of occurrences and trends that can be very essential at the development of strategic plans.

Foreign breeding implements the idea of partnership with all the significant Polish companies (like seminal head offices) from the sector of the seed production of agricultural plants. The idea of the partnership allows these companies to strengthen their market position in the face of Polish breeding-seminal companies.

However, it is important to pay attention on the fact that the common fight (along with partners) targeting the enlargement of the sale of certified seed material on the Polish market is dictated an inclination and the ability of farming producers to the acquisition of this material. This inclination depends on the financial situation of farming producers. The better is financial situation, the greater inclination to the acquisition of products more diverse and characterised by the superior quality, and to the acquisition of certified seed material.

The investigated group of companies is interested in growing tendency of the profitability from the agricultural activity. The potential large power of the positive influence represented in the optimistic (Table 1) scenario provides that this factor across the variability greatly bears on the activity of foreign plant breeding companies simultaneously creating the stormy environment, which is proved by the large spread of this factor between the optimistic and pessimistic scenarios (Table 2).

Examining the most probable scenario (Table 3) it can be ascertained that the profitability from the agricultural activity in near future will be characterised by the negative tendency of development. It means that the profitability as the leading factor among processes of the economic environment is a factor of the threat. Thereby, to build the strategy of the development, a decision-maker should be prepared to neutralise the negative influence of this factor.

The value of the Polish zloty (PLN) in relation to euro (EUR) on level 3.40 is the following analysed factor from the economic environment. The research showed that the analysed group of companies would desire stable exchange rate and the margin around the analysed (3.40); whereas a threat would be the fall in the value of the Polish zloty (PLN) in relation to euro (EUR). As opposed to the research made by B. Gołębiowski (2006) in the section of Polish companies of breeding-seminal, where this factor was characterised by potentially weak force of the negative influence, in the opinion of foreign breeding this is the factor with the potentially large negative impact, and the tempestuousness of the environment called out with this factor provide that foreign companies of the plant breeding are greatly dependent on that.

The next investigated factor is the price index of goods and consumer services commonly called the inflation. The analysis of the optimistic scenario results that the potential influence of this factor is positive, which is the fall of the level of the inflation in the next years with relation to the rate 4%, and that is considered as very large impact. The large spread of this factor between the optimistic and pessimistic scenario means that the analysed companies are greatly dependent on the inflation rate. Instead the thesis that the price index of goods and consumer services is a leading process among investigated processes and is characterised by the very large power of the positive influence is the result from the analysis of the most probable scenario.

The rates of interest shaping the cost of the money in pulled loans are an important economic factor. As results from the analyses of the optimistic scenario, the company sees the chance for the development mostly in the decrease of the rates of the interest on loans, and this process determines for them potentially a very large power of the positive influence. Instead, increase in the level of the interest on loans is a process with a potentially large power of the negative influence.

Examining the most probable scenario it can be ascertained that the level of the interest on loans in the near future will drop. The reason of this situation in the longer perspective is the probability of decrease of the inflation rate and observing the slow-down of the economic growth. The reduction of service costs of loans is a positive tendency, and a very large power of the positive influence means that rates of

interest are also a leading factor among processes of the economic environment.

The level of rates of value added tax on resources to the farming production is not the leading factor of the economic environment. The analysis of optimistic and pessimistic scenarios shows that this is the factor creating the stormy environment. On the contrary the acquaintance of assumptions of the fiscal policy in Poland in the near future expected to ensure the stabilisation of rates of the tax on resources to the farming production shows a very weak power of the influence of the factors.

The research made by B. Gołębiowski (2006) in relation to Polish companies of breeding-seminal within the influence of the economic factor which is the level of first-hand surcharges to cultivated lands, it is proved that these companies are strongly dependent on this process. That is mostly because

Table 1

The optimistic scenario according to the analysed companies leading the activity in the sector of agricultural plant breeding in Poland

Elements of the scenario of the economic sphere	Power of the influence
increase of profitability from the agricultural activity	+ 4
stabilisation of the price EUR/PLN on the rate of 3.4	+ 4
decline of the inflation rate below 4%	+ 5
decrease of the interest rates on loans	+ 5
decrease of rates of value added tax on resources to the farming production	+ 4
increase of the level of first-hand surcharges to cultivated lands	+ 4
stabilisation of prices on resources to the farming production	+ 1
increase of the accessibility to operating loans	+ 4
Average power of the influence	+ 3.88

Source: author's research

Table 2

The pessimistic scenario according to the analysed companies leading the activity in the sector of agricultural plant breeding in Poland

Elements of the scenario of the economic sphere	Power of the influence
decrease of profitability from the agricultural activity	- 4
devaluation of PLN in relation to EUR	- 4
increase of the inflation rate above 4%	- 4
increase of the interest rates of loans	- 4
increase of rates of value added tax on resources to the farming production	- 4
decrease of the level of first-hand surcharges to cultivated lands	- 3
increase of prices on resources to the farming production	- 3
limitation of the accessibility to operating loans	- 3
Average power of the influence	- 3.63

Source: author's research

Table 3

The most probable scenario according to the analysed companies leading the activity in the sector of agricultural plant breeding in Poland

Elements of the scenario of the economic sphere	Probability	Power of the influence „negative"	Power of the influence „positive"
decrease of profitability from the agricultural activity	0.4	- 4	
devaluation of PLN in relation to EUR	0.5	- 4	
decline of the inflation rate below 4%	0.4		+ 5
decrease of the interest rates of loans	0.5		+ 5
stabilisation of rates of value added tax on resources to the farming production	0.5		+ 1
stabilisation of the level of first-hand surcharges to cultivated lands	0.8		+ 2
increase of prices on resources to the farming production	0.5	- 3	
stabilisation of the accessibility to operating loans	0.4		+ 2
Average power of the influence		- 3.67	+ 3.0

Source: author's research

of the organisational structure of Polish breeding-seminal companies, which are organised guided in the form of large farms. Foreign companies of agricultural plant breeding do not mind that the level of first-hand surcharges to cultivated lands is a leading factor. On the contrary they qualify this factor as the liable process which can lead to the significant turbulence in the economic environment. From the research of this process the results show that, in the near future, the potential power of the positive influence will be quite small. The level of first-hand surcharges to cultivated lands is a following process of the economic environment, wherein decision-makers should constantly follow changes which may appear.

The level of prices on resources to the farming production is the leading factor of the economic environment for Polish companies of breeding-seminal. In this process, according to managers, quick and considerable changes occur, and companies are mostly dependent on these processes. It is a result of the fact that all analysed companies also lead the agricultural activity as large farms renting several thousands of hectares of land from the Agricultural Property Agency (Gołębiowski 2006). For foreign companies of the plant breeding it is a foreseeable process, where ups and downs do not happen, and these companies are almost independent on that factor. The conclusion could be the price level on resources to the farming production as the factor of the economic environment of foreign companies

leading plant breeding (in Poland) is homogeneous, and possesses the small degree of the complexity, in relation to the above - it is not the leading process.

The accessibility to operating loans was the last analysed factor from the economic environment. Considering the most probable scenario it can be ascertained that, in the near future, the accessibility to operating loans will become well-kept on the present conditions consequently meaning the potential power of the positive influence of this factor is rather small. It needs to be remembered that the environment within the range of accessibility to operating loans is stormy. Thereby, to build the effective strategy it is strongly recommended to follow neutralising the influence of that factor. Foreign companies of the plant breeding during the process of formulating strategy should, on the one hand take this process into consideration for the purpose of the best usage, and on the other hand they should constantly monitor all the changes happening in this process.

Conclusions

The analysis of scenarios shows that inPoland the examined factors (processes) of the economic environment have a different impact on the company's development in the agricultural plant breeding sector. Basing on the research the following conclusions can be formulated:

1. The potential power of influence of factors with the negative impact exceeds the potential power

of influence of factors with the positive impact in the economic environment of the sector of agricultural plant breeding. Instead positive occurrence is a fact that the number of chances exceeds the number of threats.

2. The large spread of examined processes between the scenario optimistic and pessimistic (to the exclusion the process of the change of prices on resources to the farming) means that the economic environment in Poland is quite stormy for foreign companies of the plant breeding sector, wherein quick and considerable changes take place, and the companies depend on that environment. That fact forces constant monitoring of changes inside the economic environment in the case of formulating and implementing the chosen strategy.

3. The decline of inflation and practically correlated fact of the decline of the level of loans is one of the leading factors of potentially very large power of the positive influence on the activity of foreign companies of the plant breeding sector. Potentially large force of negative influence on the researched companies is characterised the negative tendency of development in the profitability from the agricultural activity and the devaluation of the value of the Polish zloty (PLN) in relation to euro (EUR).

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Economic Prerequisites of Rural Forest Machine Enterprises

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Abstract

Global competition has caused forest industry to outsource many phases of wood harvesting to forest machine entrepreneurs. Poor profitability, low liquidity and solvency of the harvesting business have lead to difficulties in hiring qualified operators. Asymmetry of negotiation powers between industrial customers and entrepreneurs maintains the low profitability. Consequently, few entrepreneurs have been able to develop their business, although some interesting exceptions do arise.

The financial data of 1 000 logging enterprises operating in 2007 were analysed for the period 2001-2007. Two thirds of enterprises were small, operating one or two machines, but they produced only one third of the total turnover. The ratio analysis focusing on the profitability, liquidity and solvency reveal economic problems in a quarter of the enterprises. High debts, and to some extent high levels of investments, have negative effects on profitability. Reserves needed to develop operations are very small in general and nil on the smallest enterprises. Entrepreneurs need managerial skills and appropriate business tools to cope with the problems of staying in the business, and especially concerning the growth of their enterprises.

Key words: ratio analysis, management accounting, wood procurement, logging development, rural entrepreneurship.

Introduction

The wood harvesting business in Finland is performed by forest machine entrepreneurs and by forest owners themselves. Logging sites and their working orders are typically decided by the customers. The volume of round wood and forest residual energy wood harvested by forest machine entrepreneurs in Finland was 57 million cubic meters in 2007 (Finnish Statistical … 2008). A rough estimation of the compensation was about EUR 535 million. The value of other tasks, such as soil preparation, is about EUR 35 million. Outside these numbers, forest owners harvest nine million cubic meters wood. According to the forest industry's research company Metsäteho Oy, the average harvesting cost to road side is c. EUR 9.1 per cubic meter (Kariniemi 2008).

The harvesting business is a typical small subcontractor business. It started 40 years ago as one-man enterprises when horse owners moved to farm tractors and later to forwarders. Logging was later mechanised with harvesters, which resulted in enterprises with more machines. Many small entrepreneurs work for a few large customers, under their strict control (Mäkinen, P. 1988). Three international forest industry companies buy about 70% of services, based on mutual negotiations. The State Forest Service arranges tender competition for entrepreneurs. Smaller forest industry companies and forest owners buy remaining services. The larger customers are fully aware of the entrepreneurs' cost structure.

The tight negotiation situation (Alajoutsijärvi, K. et al 2001), slight overcapacity and apparent hard competition have kept compensations low. The lower quartile of gross investments were at the nil level, but the average achieved EUR 33,000 in 2000 (Väkevä, J. and Imponen, V. 2001). The average of gross investment related to turnover was roughly 18% in 2001. About one fifth of entrepreneurs have operated with losses during the previous twenty years period (Mäkinen, P. 1988, Väkevä, J. & Imponen, V. 2001). The founder generation of entrepreneurs is retiring and customers are outsourcing more tasks to entrepreneurs. There is now an opportunity to restructure the harvesting business into larger but fewer forest machine enterprises. Problems nevertheless arise from the poor economy and entrepreneurs´ poor business skills (Penttinen, M. et al 2006). Low compensation and thus salaries result in a lack of skilled operators and new entrepreneurs. Strong economic cycles, restructuring of forest industries and seasonal variations in the wood markets and harvesting conditions present extra challenges to business.

The aim of this study is to examine the economic situation of forest machine business; to see if it has resources to develop its business structure and operations in order to respond to customers' new

requirements while coping with an economic recession. The hypothesis is that forest machine entrepreneur's economy is strong enough to successfully meet future challenges. The first task of this study is to determine the present state of the forest machine business; its structure, economic situation and challenges. Secondly, the task is to examine success and failure factors. Thirdly, it is necessary to identify economic prerequisites to develop business.

Materials and methods

The enterprises for economic analyses were obtained from the Finnish Vehicle Administration (AKE) (AKE 2008). The data included false observations because earlier all forest machines did not need to be registered and because forest machines are also utilised by other businesses. Entrepreneurs using only machines older than 15 years were also excluded. From the original 5,650 machine and their owner data the identifications of 1864 enterprises were sent to Statistics Finland (2008). Their register included 2,271 enterprises and 4,698 machines of those listed in the AKE data. Missing values in the data caused that an average number of enterprises in the following calculations varied around 1,000. The following calculation represents the situation in June 2007, but those enterprises in the data also have values from 2001. The results before 2007 present only economic situation of companies, which existed in 2007.

The applied ratio analysis of accounting and the formulae employed are defined in CCA (2000), CCA (2005) and Palepu et al. (2007). The research tradition focuses on ratio proposals, their structure and statistical properties, among other aspects. Moreover, descriptive statistics, statistical tests and analyses were employed including correlation and factor analysis.

The new International Financial Standards (IFRS) of the EU focuses on the market-based 'fair values' of property items. Return can be calculated on assets, invested capital and own capital. For example, the return on assets (ROA) = 100*(net result + financing cost + taxes)/total capital, the last of which sums the external and own capital. The ROA is the best return measure to report the operational result of the firm. The return on equity (ROE) can be obtained by dividing net profit by own capital. Among small and medium sized enterprises (SMEs) the ROE is often vague or even misleading. Moreover, it suffers from debt leverage that exaggerates both good and bad times.

Results
1. Volume and structure of business

The total turnover of forest machine enterprises in the Statistics Finland material (1,057 enterprises) was EUR 462 million, which represents 80% of the previously mentioned estimate of harvesting and silviculture compensation. The majority of forest machine enterprises (65%) have only one or two machines but they produce only 32% of total turnover (Table 1). Turnover per machine is almost constant at around 125 000 EUR /machine in all classes. This means that either turnover or number of machines can be used as the key figure to describe the volume of business. Turnover per number of hired persons decreases slowly as the number of machines grows.

The form of the enterprise was profoundly influencing the background information. Most enterprises have started as a private enterprise; a valid form for a small company. A limited company, on the other hand, offers better tools for financing and operating an enterprise. The range of enterprise forms are reflected in the average turnover of each enterprise form (Figure 1).

Table 1

Key size and economy figures of forest machine enterprises in 2007

Number of machines in enterprise	Number of enterprises in class, % (N = 1006)	Share of total turnover in class,%	Average turnover, EUR	Average number of whole time personnel
1	38	14	136 000	0.9
2	26	18	259 000	1.8
3-4	23	28	480 000	4.2
5-6	6	12	717 000	7.3
7-10	5	16	1 347 000	13.3
Over 10	2	12	2 620 000	24.1
Total	100	100	294 000	2.1

Source: AKE (2008) and Statistics Finland (2008)
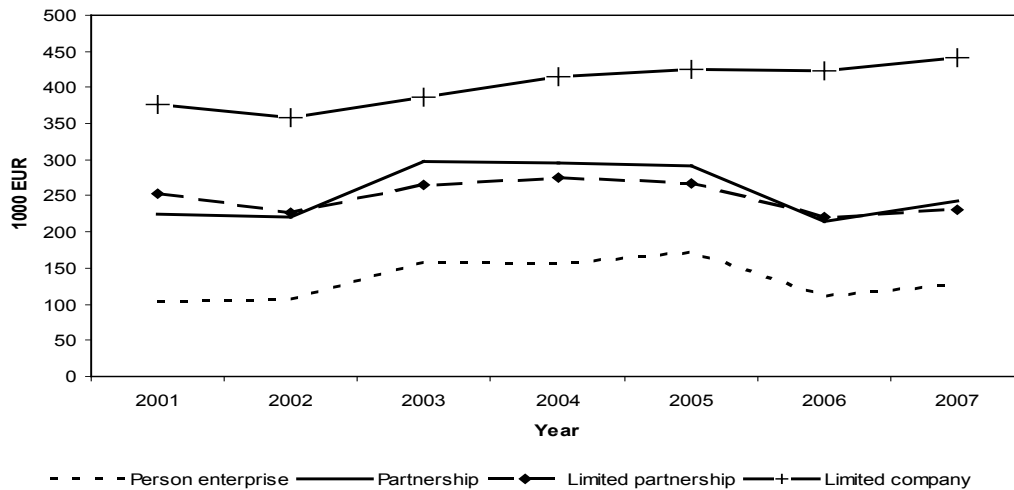
Source: AKE (2008) and Statistics Finland (2008)

Figure 1. **Turnover of median enterprise in various business form classes in 2001 – 2007**
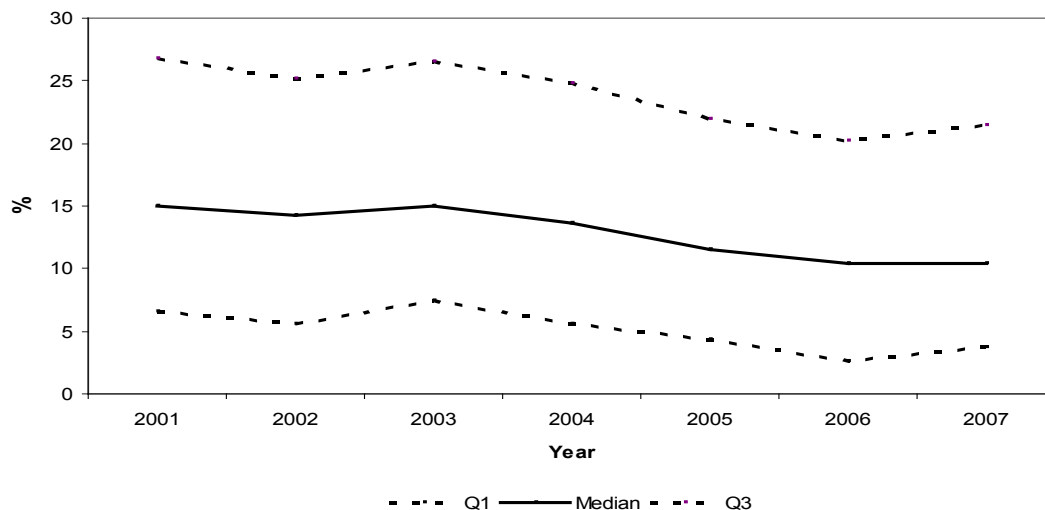
Figure 2. **The lower quartile (Q1), average and upper quartile (Q3) of the return on assets (ROA)**

Private enterprises, the most simple business form, had the smallest average turnover, while limited companies had a four times larger average turnover. One fifth of all enterprises were private enterprises, but almost half were limited companies, 13% were partnerships and 19% limited partnerships. Limited companies had 3.7 machines on average, while private enterprises had only 1.6 machines. Both types of partnership enterprise had 2.5 machines on average.

2. Profitability

Profitability has been shown to be the best indicator of performance (Brozik, D. 1984). However, even the best profitability does not help, if there are other financing difficulties. Profitability was studied

analysing the *return on capital* and *structure of profit.* Traditionally, the latter has been emphasised, but the new International Financial Reporting Standard (IFRS) of the EU favours return on assets (ROA) or return on equity (ROE) (Laitinen, E. & Laitinen, T. 2004).

Recall that the return on assets (ROA) is the best return measure for determining the operational result. The ROA can be considered good if it is over 10%, satisfactory ranging between 5-10 % and poor when below 5% (CCA 2005). Unfortunately, all the return indicators have been decreasing slowly in recent years, the ROA even surprisingly quickly (Figure 2).

The return on capital figures of wood procurement enterprises suggest a moderate profitability among

medium enterprise, but reveal a poor profitability among the lower quartile firms (Table 2).

In 2000 the upper quartile, medium and lower quartile of the ROA were 35%, 18% and 3% respectively (Väkevä, J. and Imponen, V. 2001). The decrease in ROA may be explained by both the increase in the amount of machine investments and the decrease of the net profit. The ROE has achieved level of nearly 20% on a medium enterprise and the upper quartile 40% during the study period, 2001-2007. The lower quartile was negative. It means that 25% of enterprises have to import additional capital to their business.

3. Structure of profit

Profitability is the starting point of all considerations. It is linked with other important items such as financial adequacy and capital structure. The wood procurement in SMEs has been studied in Finland using a model that combines growth, profitability, and financing (Kärhä, K. 2000).

The statistical data of Finland do not split costs into variable and fixed, thus no gross margin on sales are available. However, the data provide operating margin, operating result, net result, and result for the fiscal period (CCA 2005). By adding depreciation and reductions, which were deducted before operating results, to net result, the financing result emerges. Moreover, one could obtain the total result by deducting extraordinary income and expenses from net results. The total result and the result for the fiscal period bring little additional value to the analysis and are ignored here. To eliminate the size of the enterprise all results are related to turnover (Table 3).

The return inquiry of the Trade Association of Finnish Forestry and Earth Moving Contractors (Contractors 2008) showed a mean net result of 2.5% in 2006 and 4.3% in 2007, and claimed that a positive net result could be obtained by 65% of the enterprises. However, enterprises in which thinning accounted for less than 50% of turnover achieved 5.0% return, and enterprises where thinning accounted for more than 50% achieved only 3.3% in 2007. In 2000, the mean net result was roughly 8% (Väkevä, J. and Imponen, V. 2001). More than half of the entrepreneurs considered their result to be satisfactory, while 20% considered their result to be poor. According to 55% of the entrepreneurs' compensation levels have remained steady but according to 45% of respondents the levels have increased. According to 49% of replies, the most important item to be improved was the compensation level (Contractors 2008).

The level of the net result is low compared to many other branches of business, but common to SMEs. The net profit started to decrease in 2003-2004. Moreover, the lower quartile became negative in 2006, which may have been affected by the decrease in the felling volumes. The variation in the median of the net result is surprisingly large, especially between smallest firms and the others (Figure 3).

4. Financial adequacy

Successful financing affects the profitability, liquidity and solvency of an enterprise. The points of interest in finance analysis are *financial adequacy* and *capital structure*. In SMEs, the financial adequacy is often the most critical, while capital structure provides only a general picture.

Table 2

Return on capital of the studied enterprises in 2007

Parameter	Lower quartile	Medium	Upper quartile
Return on total capital (ROI), %	4.6	13.2	27.1
Return on assets (ROA), %	3.7	10.4	21.5
Return on equity (ROE), %	1.5	19.9	50.2

Table 3

Ratios of the structure of profits in the studied enterprises in 2007

Parameter	Lowe quartile	Medium	Upper quartile
Operating margin, %	19.3	28.9	39.0
Operating result, %	4.2	11.0	20.3
Net results, %	0.4	6.3	13.8
Net result, 1000 €	0.4	19.1	49.4
Financing results, %	14.7	23.8	32.0
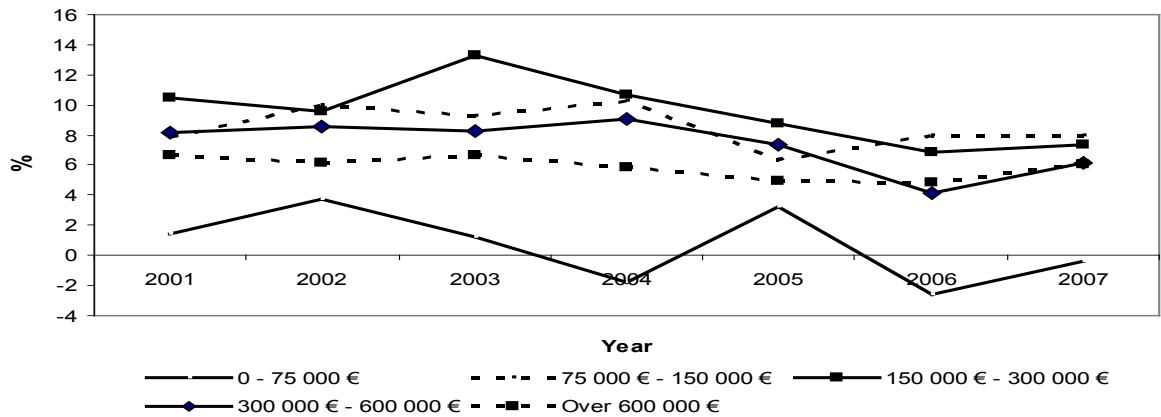
Figure 3. **The average net result shown in different turnover classes in 2001-2007**
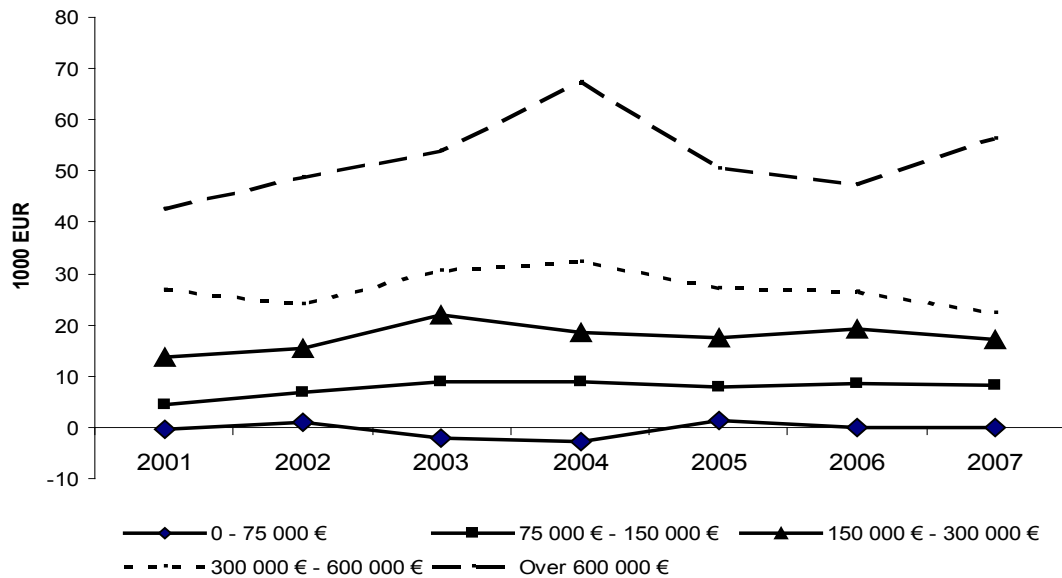
Figure 4. **The average reserve of enterprise by turnover classes 2001-2007**

The financing result should cover the scheduled amortisation, investment financed with internally generated funds, the increase in working capital and the dividends divided to the share capital. Financing result is obtained by adding depreciation and reductions in value to the net profit. It should be positive even in the short term; otherwise the risk of bankruptcy emerges.

Possibly the most concrete information depicting the financing situation is the *repayment period of debts*. It is the invested external capital divided by financing result (CCA 2005). This pay back period of upper quartile enterprise did not exceed four years; the period of median enterprise slightly exceeded two years in 2001-2007. Four years can be seen a practical utilisation time of forest machine. Debts divided by operating profit in the upper quartile remains at the level of 2.5 years and that of the median at roughly 1.5 years in 2001-2007. The former number can be considered to be satisfactory and the latter good (CCA 2005).

Net financing costs can be related to the operating profit (CCA 2005). This figure was 15% in the case of the upper quartile and about 9% for the median enterprises. Alternatively, financing expenses can be estimated from the interest coverage ratio. It can be obtained by dividing the sum of the operating profit, dividend return, interest return and other financial returns by financing expenses. This ratio measures the sufficiency of operating profit and financing return to take care of the financing costs. This figure was 5 (satisfactory) for the lower quartile and 10 (good) (CCA 2000) for median enterprises.

Perhaps the best known financial ratios are the quick ratio and current ratio. The quick ratio was below 0.5 (weak) for the lower quartile and slightly over 0.5 (satisfactory) (CCA 2005) for the median enterprises. Finally, the situation of enterprises and their financial structure can be illustrated by subtracting debts of the value of tangible assets and then dividing this difference by the tangible assets. Even for the median enterprise this ratio was at the *zero level* in 2001-2007. It means that activities are heavily based on foreign capital.

5. Capital structure

The net debt ratio, net debts related to turnover, remained at the 50% level in the medium enterprises. It was nearly 100% in the upper quartile enterprises during 2001-2007. In 2000, these figures were nearly 95% and 65% for upper quartile and medium enterprises (Väkevä, J. & Imponen, V. 2001). Here, the median of net gearing, own external financing related to own capital, was roughly zero. Where negative values are caused by negative own capital, the value is described as weak (CCA 2005). Finally, net working capital related to turnover is considered. Here, even the median of the net working capital ratio was negative throughout the period 2001-2007.

6. Success and failure analysis

All closing of the books of 2007 were used to determine the factors of success and failure. Correlations revealed that debts and, to some extent also high investment levels tend to decrease the profitability. Varimax rotated factor analysis suggested factors such as (i) profitability (e.g. ROA), (ii) net debt to sales percentage, (iii) debt and financial service coverage, (iv) machine use (turnover and value per machine), (v) asset turnover and (vi) financial adequacy, e.g., quick ratio. Debt variables, but also turnover and value per machine, contained negative loadings in the success factor.

7. Reserves for development

A basic equation of financing is the use of the financing result: financing result - instalments of debts - own financing part of investments, the difference in which is here called the reserve. This result describes the seriousness of the situation facing forest machine enterprises: there are hardly any financial resources for finance improvements or other means to obtain competitive advantage (Figure 4).

Indeed, the lower quartile enterprises had negative reserves, while the median enterprises had about EUR 15,000 during the study period of 2001-2007. In 2000, the lower quartile enterprises had also no reserves, and medium enterprises had EUR 33,000

reserves. The gross investment related to turnover in median enterprise was roughly 15% during 2001-2007, but 18% in 2001 (Väkevä, J. & Imponen, V. 2001).

Discussion

The results were in line with the previous studies demonstrating the weak or even decreasing profitability of the branch (Mäkinen, P. 1988, Väkevä, J. & Imponen, V. 2001, Penttinen, M. et al 2006) . A weak economy limits the development of the wood harvesting business. Few enterprises have sufficient resources to stay in business, while the customers are not willing to invest in developing the branch, as used to be the case. Entrepreneurs therefore need as much support as possible. Effective tools for improving the economic and managerial skills of entrepreneurs are urgently required. Moreover, the lack of skilled labour force is a further impediment (Örn, J. 2004).

The harvesting technology itself is currently developing only slowly; a characteristic of a mature industry. Profitability improvement opportunities therefore lie in the application of information and communications technologies and in advanced management and economic skills. Stress must be put on the improvement and the use of improved business models and processes (Penttinen, M. et al 2008). Harvesting process simulation analysis, for example, has demonstrated a 7.2% reduction in machine transfer costs, where operations are more intensive; i.e., contracting with several clients and offering transfer services (Väätäinen, K. et al 2008). "Less is more - intelligent and learning wood supply with smaller resources" -project (http://www.metla.fi/hanke/7333/index-en.htm) aims to develop a software, which supports the operator performance. Supporting all these developments is a key task for the Finnish Forest Research Institute, which has recently started a new extensive research program "Renewing wood product value chains and wood procurement solutions (WOOD)" for 2009-2013 (http://www.metla.fi/tutkimus/index-en.htm).

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Leasing Development and Dynamics in the World and Europe
Līzinga attīstība un dinamika pasaulē un Eiropā

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Abstract

Leasing is the most vibrant and dynamic industries in the world. It facilitates the financing of equipment and real property. It fosters economic growth, creates employment, and enhances tax revenues. Leasing affects any sphere of human lives as it encompasses cars, furniture, airplanes, restaurant equipment, computers, telecom equipment, medical equipment and many other properties. Leasing on a global basis accounts for more than 20% of all capital formation, or ca. 20% of all capital investment in personal property is made through leasing. The paper explores historical and theoretical development of leasing with a particular emphasis laid on the dynamics of leasing in the world, since the aim of the research is to study leasing market on the basis of leasing volume. The research shows that the world leasing volume has grown at a rate of 52.38% over the period of analysed 8 years. The study concludes that leasing volumes in Europe have increased by 40.9% in 2007, while the market share has increased from 41.1% to 48.3% of world volumes. All European countries employ leasing as a way of providing cheap and flexible financial services to SMEs, self-employed entrepreneurs and private individuals. The research is mainly based on the monographic descriptive method, as well as the methods of analysis and synthesis.
Key words: Leasing, finance, operating, volume, penetration rate.

Introduction

There are several scientific studies done on leasing (Eisfeldt, Rampini, 2007; Gallardo, 1999; Lasfer, Levis, 1998; Schmit, 2004; Pakhtusov, Bay, 2006; Sharpe, Nguyen, 1995; Taylor, 2003 etc.) in the world; however there are quite few serious studies on leasing in Latvia (Leja, 2003), the majority of publications fall under the category of legal and regulatory enactments (Unidroit, International Accounting Standards etc.). The mentioned authors have looked upon the problem from different aspects, mainly theoretical, legal and accounting. Therefore there was a need to provide a distinctive approach towards the issue and the following hypothesis is defined: leasing as financial tool volumes have consistently grown over the world and expanded into market penetration ratio. The aim of the research is to study leasing market in the world on the basis of leasing volume. The following tasks are advanced to achieve the set aim:

1) to give a survey on historical development of leasing;
2) to analyse legal and regulatory aspects of leasing;
3) to study the essence and process of leasing;
4) to analyse the volume of leasing market.

The information compiled by Leaseurope, internet resources, different working papers, scientific publications and other materials have been used for the purpose of the study. The research is mainly based on the monographic descriptive method, as well as the methods of analysis and synthesis are used to study the problem elements and synthesize coherencies or formulate regularities.

Results and discussion

1. Historical development of leasing in the world

For the first time rent as a mechanism of financing appeared in ancient Babylon about 4000 years ago.

Nobody knows the exact date of the first rent agreement. Nevertheless according to some authors (Taylor J., 2003) the first material evidence of this type of activity dates to about 2010 BC. During a dig in 1984 at the Sumerian city of Ur, archaeologists discovered a prototype for the first rental agreement. These were clay tablets in which the sides set down their responsibilities for the paid transfer for a certain period of agricultural goods, the right to use water resources, etc. These clay tablets told the archaeologists that the first lessors were, as a rule, priests living in temples in the city of Ur (History of Leasing, 2008).

Scientists have found evidence that, between 400 and 450 BC approximately, in the ancient city of Nippur, the Murashu family opened the first rental

company known in the history of mankind. The Murashu family was the undisputed leader on the market for rental services in the Persidian Empire. It specialized in the rental of land, but also rented a number of associated products: livestock, agricultural goods and sowing equipment. Other ancient civilizations, such as ancient Greece, Egypt and Rome also used rental as an effective and sometimes the only accessible means of receiving the necessary means of production or land for farming (History of Leasing, 2008).

Well known for their business acumen and success in international trade, the Phoenicians rented out ships. The nature of ship rental agreements in ancient times was not significantly different from current leasing deals. To meet the requirements of their clients as much as possible, the Phoenicians, in addition to renting ships, offered ship crews as an additional service. It was the Phoenicians that were the forefathers of financial rental (leasing) rather than simple rental. The term over which the ship was transferred to the use and ownership of the lessee was close to the term of their useful life span. The lessee also carried the lion's share of the risks and benefits connected with the ownership and use of the ships (History of Leasing, 2008).

In 1066 England was subject to a sudden attack from the Norwegian king and a Norman duke. Within two weeks of the start of the campaign, both fleets reached the shores of England. Neither the Norwegian king nor the Norman duke has sufficient ships or sufficient time and money to build fleets and simultaneously finance this type of military campaign. For these times, this was a serious military operation. The English were unable to find any other explanation for the phenomenon other than divine intervention. However, in fact it was much simpler – both leaders found sources of financing – they rented fleets, crews and arms and successfully implemented their business plan (History of Leasing, 2008). Consequently the year 1066 when William the Conqueror "rented" from Normans ships for intrusion into Britain may be dated as the time of the first leasing transaction.

In the 11th century the following transactions with the features of rent/leasing were concluded in Venice: Venetian blacksmiths rented at that time very expensive ship anchors to ship owners and merchants after the coming ashore returned the "cast iron wealth" to the owners who re-rented them (Lavrushina, 1992). In the Middle Ages it was popular to rent horses and agricultural equipment. It is a known historical fact that in the Middle Ages rental of knight's armour was widespread, as this was very expensive. For example, in 1248 the knight Boniface Manganella, who was planning to go on the seventh crusade, rented a full set of knight's amour. Interest on the rental amounted

to about 25% of the cost of the armour (History of Leasing, 2008).

The first recorded leases of personal property in the USA seem to have been leases of horses, buggies and wagons by liverymen or livery stables in the 1700s. Modern equipment leasing in the USA had its significant beginnings in the 1870s by financing barges, railroad cars, and railroad locomotives under equipment trust certificates. At the moment the historical right to be called the "first company" that applied rent as a business, is being disputed between British Railway Wagons and the American telephone company Bell whose management decided to market the telephones in a similar way in 1877 (History of Leasing, 2008).

The modern interpretation of financial leasing appeared at the beginning of the 1950s in the USA. Henry Shonfelda is considered to be the father of this kind of activity. He created a leasing company for one concrete transaction in the field of railway transportation in 1952. Subsequently he decided to be engaged in this business, having based the famous American leasing company "United States Leasing Corporation" now called "United States Leasing International Inc." In the 1960s, IBM and Xerox recognized that substantial sums could be made from the financing of their equipment. Their leasing of computers and office equipment was a significant contribution to the growth of leasing, since many companies were exposed to equipment leasing for the first time when they leased such equipment. Also, computer leasing by independent third-party leasing companies became popular during the 1960's (Equipment Leasing Association, 2008).

Soon, other industries saw the opportunities in the equipment leasing marketplace. When the USA Congress amended the Bank Holding Company Act, permitting banks to form holding companies and engage in a number of activities other than lending, banks found themselves able to engage in equipment leasing. Suddenly, leasing became respectable, moving from "lending as a last resort" to a type of creative financing of which smart companies took advantage. Within a few years, most companies were exposed to leasing and many began using leasing on a regular basis to finance equipment needs. The industry has grown ever since (Equipment Leasing Association, 2008).

In Europe financial leasing started to develop at the end of the 1950s - beginning of the 1960s. Financial leasing started to develop in the 1970s in the markets of South America, Asia and Africa. The 1980s are characterized by acceptance of the concept of financial leasing practically all over the world (History of Leasing, 2008). In 1989 the USSR started to apply leasing as technique loan to obtain

contemporary industrial machinery from the Western countries (Pakhtusovs., Bay D., 2006).

Currently the idea of leasing has penetrated in Europe, Africa, Australia, New Zealand, Japan and even China. In Europe the foundation of **Leaseurope,** the European Federation of Leasing Company Associations, in 1972 in Brussels plays a significant role in the development of leasing transactions. Since April 2006, Leaseurope, represents as an umbrella body both the leasing and automotive rental industries in Europe, and is composed of 46 Member Associations in 34 countries. The countries represented are: Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Morocco, the Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia & Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tunisia, Ukraine and the United Kingdom. Leaseurope's mission is essentially to represent and promote the interests of its members as the expert and natural voice of the European leasing and automotive rental industries (Leaseurope, 2008).

The history of leasing in Latvia is relatively short. The year 1992 may be considered as the first period of leasing development in Latvia when the first leasing company *Agrolīzings* was established with the aim to help Latvian farmers obtain the expensive foreign agricultural machinery. The company transactions may be classified as service leasing, since the company provided also spare parts and maintenance service to farmers. The second period characterises the participation of commercial banks in leasing transactions and marks the end of 1993 and the beginning of 1994. Baltic Transit Bank was the first commercial bank started to provide leasing services followed by the company Hansa Leasing, Parex bank and Unilīzings. In 1994 Baltic Transit Bank became the founder of Latvia National Association of Lessors joining 16 members (10 legal entities and 6 natural entities) and having a significant role in the promotion of further development of leasing transactions. The third period relates to the second half of 1995 when Latvia National Association of Lessors became a corresponding member of Leaseurope. In 2000 four leasing companies established a new public organisation – Latvia Association of Lessors. The founders of the new association emphasised the incapability of the previous organisation to ensure the interests of all members due to different approach

of commercial banks towards leasing operations (Pelšs, 2000). Currently almost all the largest and famous credit institutions or their affiliates, or leasing companies offer leasing services.

2. Legal and regulatory aspects of leasing

Some historians (Brockhaus, 1997) consider the Code of Hammurabi as the first law regulating legal aspects of leasing. This code was adopted ca. 1700 BC and mainly referring to hiring of oxen reflects some features similar to leasing:

— If any one hires oxen for a year, he shall pay four gur of corn for plow-oxen.
— If any one hires an ox or an ass, and a lion kill it in the field, the loss is upon its owner.
— If any one hires oxen, and kill them by bad treatment or blows, he shall compensate the owner, oxen for oxen.
— If a man hire an ox and he breaks its leg or cut the ligament of its neck, he shall compensate the owner with ox for ox.
— If any one hires an ox, and put out its eye, he shall pay the owner one-half of its value.
— If any one hires an ox, and break off a horn, or cut off its tail, or hurt its muzzle, he shall pay one-fourth of its value in money (The Code of Hammurabi, 1910).

Nevertheless the code and other ancient documents discuss the role and regulations of rent and hiring, this still could be mentioned as the first signs of leasing.

Nowadays in the world financial leasing operations are regulated by UNIDROIT[1] Convention on International Financial Leasing adopted on May 28, 1988 in Ottawa. The Convention governs a financial leasing transaction in which one party (the lessor),

a) on the specifications of another party (the lessee), enters into an agreement (the supply agreement) with a third party (the supplier) under which the lessor acquires plant, capital goods or other equipment (the equipment) on terms approved by the lessee so far as they concern its interests, and

b) enters into an agreement (the leasing agreement) with the lessee, granting to the lessee the right to use the equipment in return for the payment of rentals (UNIDROIT, 1988).

This Convention applies whether or not the lessee has or subsequently acquires the option to buy the equipment or to hold it on lease for a further period,

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[1] The International Institute for the Unification of Private Law (UNIDROIT) is an independent intergovernmental Organisation with its seat in Rome. Its purpose is to study needs and methods for modernising, harmonising and co-ordinating private and in particular commercial law as between States and groups of States. UNIDROIT's 63 member States are drawn from the five continents and represent a variety of different legal, economic and political systems as well as different cultural backgrounds.

and whether or not for a nominal price or rental. Beside the Convention applies to financial leasing transactions in relation to all equipment save that which is to be used primarily for the lessee's personal, family or household purposes. Thus the Convention provides a framework for cross border leasing between states that are party to it, and it recognizes financial leasing as a "three party arrangement."

Recent developments, whether it be in relation to the UNIDROIT Convention on International Financial Leasing or the Cape Town Convention on International Interests in Mobile Equipment have highlighted the special need that developing countries and countries engaged in the transition to a market economy have for the introduction of modern legal rules governing the financing of equipment, of every level of value, in order to develop their economic infrastructure.

In April 2005, the Governors Committee of UNIDROIT decided to undertake a programme to prepare a *Model Law on Leasing*. The purpose of a Model Law is to have a set of rules for law makers to follow in participating countries. Usually a Model Law is prepared based on the best practices within an industry, offering a uniform and predictable legal framework for countries adopting the Model Law. Model Laws help facilitate international trade of goods and services because parties from different countries have the security of knowing that the same legal and commercial rules are applied in participating countries. A Model Law is welcome when the current legal system of a developing country is not applicable or not strong enough to promote best practices on leasing. With respect to the above, the members of the Committee exchanged information about the legal environments of numerous countries. The following characteristics were found:

− The legal systems of developing countries are based on three types of legal inspirations: (a) the Civil Law system which reflects the Napoleonic Code (1804). Among the countries following this system are all the developing countries that were Spanish colonies or were influenced by Spain, Portugal, France, and Germany. This includes all the countries in Latin America, Africa and the majority of Asia; (b) the Common Law system, which includes mainly British colonies and those that are members of the "Commonwealth"; and (c) the Communism system, which is fading in influence but has had an impact on the countries in Eastern Europe and Central Asia;

− Some countries have ad-hoc leasing laws. Usually, these laws have emerged within countries following the Civil Law system after their own civil codes and commercial codes have failed to provide a legal framework that

promotes the development of leasing. The first and most important example is France, which had to issue its first leasing law as a result of a contradictory decision from the French Court of Appeals in 1964;

− Even Common Law countries with advanced development have had to compile best practices. One good example is the issuance of article 2A of the Uniform Commercial Code of the USA;

− No country has a legal framework for leasing that is effective enough to become a universal role model. The Model Law has to incorporate the best of all the laws and discard their negative parts.

− Among other aspects considered by the Advisory Board as relevant were globalization, and the worldwide expansion of the Islam culture. The expansion of Islam is self-evident in Europe, due to migrations and the expansion of the European Union with the potential addition of Turkey (Castillo-Triana, 2006).

Therefore between 6 and 9 April, 2008 the Unidroit Committee of Governmental experts has adopted a Draft Model Law on Leasing that applies to any lease of an asset, if the asset is within the State, the centre of main interests of the lessee is within the State or the leasing agreement provides that the State's law governs the transaction (Draft Model Law on Leasing, 2008).

In international practice leasing is often not considered anything special and different from lease, for instance, the title of International Accounting Standard No 17 is "Accounting for Leases". The standard does not regulate leasing as single body of rights and responsibilities, it regulates one specific element of leasing – lease relationship, as provided by the definition of lease in Item 4 of the Standard defining a lease as an agreement whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period of time (International Accounting Standard No 17).

There is no special law on leasing itself, or civil or commercial regulation on leasing contract in Latvia, thus there is no single interpretation on the classification of leasing. Consequently the legal enactments of the Republic of Latvia regulate leasing and leasing operations quite inconsistent (Leja, 2003). Leasing is treated as financial lease-buyout, rent with the rights to buy out, even as crediting or financial crediting.

Hence Sections 2112-2177 of the Civil Law regulate lease relations, including land lease, and determine a lease and rental contract as the basis of lease relations stating that "a lease or rental contract is a contract pursuant to which one party grants or promises the other party the use of some property for

a certain lease or rent payment. A contract, which grants the use of a fruit-bearing property in order to gain fruit thereof, is a lease, but any other contract granting use, is a rental contract" (Civil Law of the Republic of Latvia). The lease contract shall be considered concluded as soon as the two parties have agreed upon the subject-matter (land, buildings) of the lease contract and payment, i.e., the remuneration to be paid for the use of leased land (Section 2124 of the Civil Law). Lease in the Civil Law comprises the principle of freedom to conclude a contract or enter into an agreement, and it allows the parties of lease relations freely to determine the procedure and terms for lease payments. The only requirement is to record these provisions in the lease contract.

Item 21 of Section 1 of the law "On Value Added Tax" determines hire-purchase (leasing) as a supply of goods transaction in which the lessor on the basis of an entered into hire-purchase (leasing) contract, for a specified time period and for the leasing payments specified in the contract, transfers for use to the lessee a particular good (object of the lease), providing for in the hire-purchase (leasing) contract that the object of the lease shall devolve to the ownership of the lessee if the lessee has performed all payments specified in the contract (the law "On Value Added Tax").

Item 37 Section 1 of the Credit Institutions Law states that financial leasing is crediting which is performed in accordance with the basic principles specified by the Unidroit Convention on International Financial Leasing (the Credit Institutions Law). Here the law recognises only one of leasing types, namely, financial leasing. Some other Cabinet regulations determine some aspects of rent (lease) such as "Procedure of Goods Declaration" and others.

3. Essence and notion of leasing

Finance leasing and operating leasing are the main types of leasing classified in international financial and accounting sphere. Generally each of the two types may have different subtypes and modifications. The criteria for classifying leases derives its concept from the view that a lease which transfers substantially all of the benefits and risks incident to the ownership of property should be accounted for as the acquisition of an asset and the incurrence of an obligation by the lessee and as a sale or financing by the lessor. All other leases should be accounted for as operating leases (FASB 13).

Finance leasing

The leasing shall be classified as a capital leasing by the lessee if it meets one or more of the following four criteria. Otherwise, it shall be classified as an operating leasing.

−   The lease transfers ownership of the property to the lessee by the end of the lease term.

−   The lease contains a bargain purchase option.
−   The lease term is equal to 75 percent or more of the estimated economic life of the lease property.
−   The present value of the rents equals or exceeds 90 percent of the fair value of the leased property (FASB 13).

The principle of full depreciation is an essential part of finance leasing, namely, financial interests of a lessor are fully protected either at the end of the leasing period or in case a lessee discontinues leasing payments prior to the end of a leasing period. Thus if a lessee discontinues payments, the payments already made would significantly exceed the actual depreciation of a leasing object. Hence a lessor selling the leasing object to a third party may fully cover all the lessees' liabilities (Leja, 2003). Finance leasing is characteristic with a long lease period (mainly 3-7 years) and frequently it relates to a lessees' opportunity to extend the leasing period or pre-term buy-out of a leasing object. Finance leasing is formed as legal relations of three parties whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period of time.

Operating leasing

Operating leasing is any type of leasing other than a finance leasing. An operating leasing is commonly used to acquire equipment on a relatively short-term basis and its term is short compared to the useful life of the asset or piece of equipment being leased. Operating leasing is a form of leasing whereby the lessor is the owner of the subject of leasing for the whole period of the lease and after termination of the lease. Costs associated with maintaining the subject of lease in a condition that permits its use (repair and maintenance, insurance etc.) are paid by the lessor.

The main differences between finance leasing and operating leasing are given in Table 1.

Operating leasing is very close to a rent under the conception of European civil law, and the main difference between the operating leasing and rent lies in the fact that leasing directly relates to a purchased made under the order of a lessee. In this case the lessor is not responsible for any deficiencies of a leasing object.

4. Leasing market in the world and Europe

Leasing operations continued to grow for a long time, and despite the economic gloom the leasing industry has increased mainly in Europe. One of the factors in Europe's fast grow is the remarkable increase of GDP experienced by some European countries. In Europe leasing is becoming increasingly popular as illustrated in Table 2 and compared to the rest of the world and shown by the Global Leasing

Comparative features of finance leasing and operating leasing

Features	Finance leasing	Operating leasing
Asset	May be virtually exhausted by the same lessee.	May not be virtually exhausted by the same lessee: a rental transaction, for example, allows an asset to be used by a series of users.
Position of a lessee	The lessee is put in the position of a virtual owner.	The lessee is not put in the position of a virtual owner: in full service rentals, the lessee is merely using the asset.
Risks of a lessor	The lessor takes no asset-based risks or asset-based rewards; he only takes financial risks and financial rewards.	The lessor does take asset-based risks and asset-based rewards: the extent of such risks and rewards differs based on the nature of the lease.
Cancellation of leasing	The lease is non-cancellable, meaning the lessee cannot return the asset and not pay the whole of the lessor's investment.	The lease is either fully cancellable or partly non-cancellable and partly cancellable, meaning the lessee can return the asset and not pay the whole of the lessor's investment.
Payout of an asset	It is full-payout, meaning the full repayment of the lessor's investment is assured.	It is non-full-payout, meaning the full repayment of the lessor's investment is not assured by the lessee.
Provision of services	As the lessor generally would not take any position other than that of a financier, he would not provide any services relating to the asset.	The lessor may provide any services relating to the asset, such as maintenance, or operations.
Risks	The risk the lessor takes is not asset-based risk but lessee-based risk. The value of the asset is important only from the viewpoint of security of the lessor's investment.	The risk the lessor takes is asset-based risk. The value of the asset is important not only from the viewpoint of security of the lessor's investment, but the value itself determines the lessor's returns.

Source: author's made

World leasing volume by regions between 2000 and 2007 in billions of USD

Continents	2000	2001	2002	2003	2004	2005	2006	2007	Percent change 2006 - 2007	Percent change 2000 - 2007
Europe	131.0	140.0	162.1	192.5	229.8	231.6	260.5	367.1	40.92	180.23
North America	272.4	254.1	216.0	223.9	240.7	236.7	241.1	217.7	-9.71	-20.08
South America	8.1	5.6	3.3	4.0	7.5	13.9	19.2	41.4	115.63	411.11
Asia	78.3	67.7	70.7	77.7	84.9	82.0	93.1	118.7	27.50	51.59
Australia/ New Zealand	5.3	5.5	5.8	7.6	8.1	8.2	8.6	4.1	-52.33	-22.64
Africa	3.9	3.8	3.7	5.6	8.1	9.6	11.1	11.2	0.90	187.18
Total	**498.9**	**476.6**	**461.6**	**511.3**	**579.1**	**582.0**	**633.7**	**760.2**	**19.96**	**52.38**

Source: Global Leasing Report (2009)

Report that is assembled from a number of disparate sources. The most important primary source being the national associations that represent leasing companies in most individual countries.

Leasing volumes in Europe have increased by a healthy 40.9% in 2007, while the market share has increased from 41.1% to 48.3% of world volumes. All these countries employ leasing as a way of providing cheap and flexible financial services to SMEs, self-employed entrepreneurs and private individuals. In many cases the speed at which leasing products are being expanded far outstrips other financial services sectors. Deal size continues to be quite small, but with the decline in the big-ticket sector generally, the contribution made by smaller markets and countries is increasingly significantly (Global Leasing Report, 2009).

The North American share of the global market has shrunk further, from 38% to 28.5% compared to its peak over the last two decades of 52.11% achieved in 2000. South America has experienced remarkable growth at 115.8% in 2007, taking its volume as a continent to USD 41.4 billion, retaining a 3% share of world market volume.

The Asian continent has recorded 27.5% growth, with volume expanding from USD 93.1 billion to USD 118.7 billion in 2007. The region's market share has remained unchanged, at 14.7%. For the purpose of the mentioned report, Russia is considered part of the Asian continent and Russia has played a significant role in the growth.

Australia and New Zealand have experienced the largest decrease in leasing volume accounting to 52.3% compared to the previous year, while the African leasing industry is still in its infancy and there is a scarcity of information available.

For countries where reliable data have been made reliable White Clarke Global Leasing Report provides a measure of leasing penetration. The measure is based on taking leasing as a proportion of all fixed investment in plant and equipment. Investment penetration is a better indication of how leasing compares in competition with alternative forms of financing. However, calculation of the investment penetration ratio depends on identifying the correct statistic for plant investment, against which leasing should be compared (Table 3).

Hence in 2007 the highest penetration is achieved by the USA (26%) and Canada (22%), while the lowest one by Japan (only 7.8%). Similar tendencies have been observed almost through the whole period analysed. Another leasing market penetration measure is an annual leasing volume as a percentage of GDP. Here in 2007 the highest results have been achieved by Estonia (8.66) and Latvia (6.26), while the USA shows the ration equalling only to 1.36.

The European leasing market, as represented by Leaseurope, has more than tripled in size since the Federation began collecting data from its members in 1994. Growth of the market has been consistently strong overall, with the exception of 2002, where growth rates were impacted by a drop in the more volatile real estate leasing business.

In 2007 the traditional equipment leasing market helped sustain overall new leasing volumes. All non real estate asset segments grew significantly, with the exception of the computer and business machines segment that witnessed a decline in new volumes of 2.3%. The machinery and industrial equipment segment performed strongly, with new volumes increasing by 16.9%. Similarly, the road transport vehicle segment did just as well, with growth in new volumes of 16.5% (Figure 1).

In 2007 EUR 338.9 billion of new leasing volumes were granted by the firms represented through Leaseurope's members, a 12.4% increase compared

Table 3

Comparison of the rate of equipment leasing world market penetration (%) for 2000-2007

Countries	2000	2001	2002	2003	2004	2005	2006	2007
USA	31.7	31.0	31.1	31.1	29.9	26.9	27.7	26.0
Japan	9.1	9.2	9.3	8.7	8.7	9.3	9.3	7.8
Germany	14.8	13.5	9.8	21.7	15.7	18.6	23.6	15.5
Korea	2.4	1.6	3.9	4.4	5.6	7.7	9.4	n/a
UK	13.8	14.4	15.3	14.2	9.4	14.5	12.7	11.6
France	9.2	13.7	12.9	15.4	9.0	11.7	11.0	12.0
Italy	12.3	10.4	8.6	7.6	11.4	15.1	15.2	11.4
Brazil	11.4	7.6	3.6	3.8	7.7	13.5	16.9	19.0
Canada	22.5	22.0	20.2	22.0.	23.3	23.9	22.0	22.0
Australia	20.2	20.0	20.0	20.0	20.0	20.0	18.0	14.2
Sweden	12.9	9.2	13.0	11.6	12.7	11.8	11.8	14.3

Source: Global Leasing Report (2009)
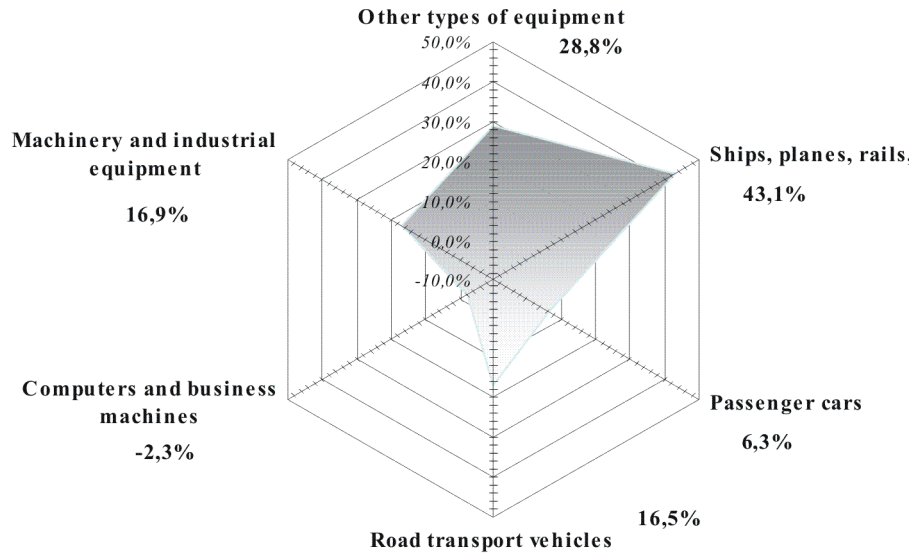
Source: Leaseurope, 2008

Figure 1. **Growth rates for new equipment leasing volumes per asset type in Europe in 2007**
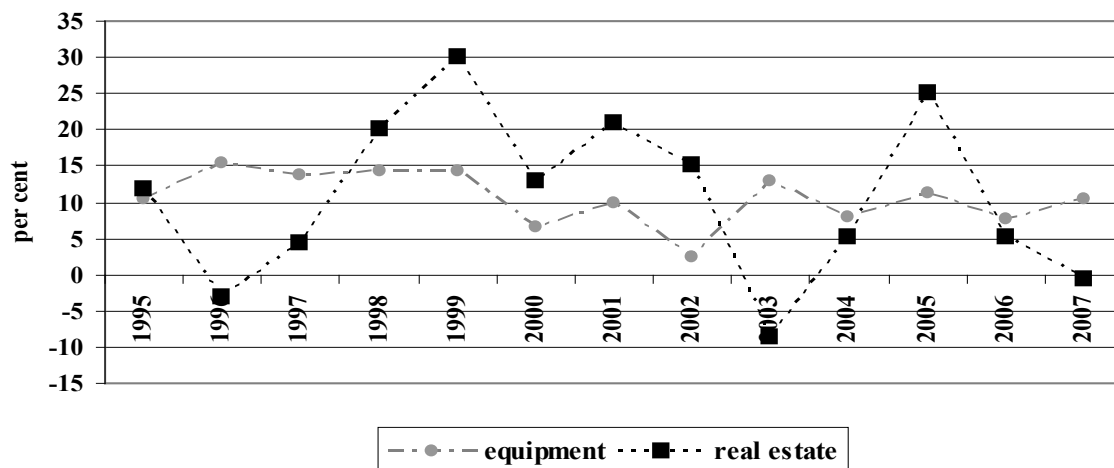
Source: Leaseurope, 2008

Figure 2. **New leasing growth rates per asset category in Europe foe the period 1995-2007**

to 2006. These members represent approximately 93% of the European leasing market (Figure 2).

New equipment leasing contracts, including vehicles, amounted to EUR 292.4 billion and real estate leasing volumes worth EUR 46.5 billion were made during the year. New business growth can be split into a 14.8% increase for equipment (including vehicle) leasing and a 0.7% drop for real estate leasing. Just over two thirds of new equipment (including vehicle) leasing volumes were made to the private sector, with 12.2% granted to private individuals and nearly 3.0% to public authorities. As in previous years, the majority of new contracts were made for an original contract term between 2 to 5 years. For the second year in a row, the share of

longer term leases (5 - 10 years) grew the most out of all contract term segments, increasing by 29.1% compared to the previous year. In terms of the types of building on lease, retail outlet leasing decreased as compared to 2006 dropping from a growth rate of 48.2% to only 4.1% in 2007. Industrial buildings, hotel and leisure and other type of buildings suffered drops of 1.2%, 2.3% and 11.1% respectively. Industrial buildings were the largest segment of real estate leasing in 2007, comprising 28.7% of new real estate leasing volumes. Shorter and longer term real estate leases were preferred to midrange contracts (6 - 18 years). This is a trend reversal as compared to 2006 when mid-range contracts were favoured over the others.

Conclusions

1. The modern interpretation of financial leasing appeared at the beginning of the 1950s in the USA, when the first leasing company for one concrete transaction in the field of railway transportation was created. Currently the idea of leasing has penetrated in the rest of the world.

2. The Code of Hammurabi is frequently considered as the first law regulating legal aspects of leasing. Nowadays financial leasing operations in the world are regulated by Unidroit Convention on International Financial Leasing. A draft Model Law on Leasing has been adopted to regulate leasing operations in the world.

3. Recent developments have highlighted the special need for developing countries and countries engaged in the transition to a market economy to introduce modern legal rules governing the financing of equipment, of every level of value, in order to develop their economic infrastructure.

4. The criteria for classifying leases derives its concept from the view that a lease which transfers substantially all of the benefits and risks incident to the ownership of property should be accounted for as the acquisition of an asset and the incurrence of an obligation by the lessee and as a sale or financing by the lessor.

5. One of the factors in Europe's fast grow is the remarkable increase of GDP experienced by some European countries. Leasing volumes in Europe have increased by 40.9% in 2007, while the market share has increased from 41.1% to 48.3% of world volumes. All these countries employ leasing as a way of providing cheap and flexible financial services to SMEs, self-employed entrepreneurs and private individuals.

6. The hypothesis set was proved as shown by growing leasing volume sin the world.

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Latvijas finanšu tirgus: problēmas, risinājumi
Financial Market of Latvia: Problems and Solutions

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Abstract

Financial instability is encoded in the term *finance* itself – the flow of valuables in the form of money, which assumes financial autonomy from its material basis. Speculative transactions are a component of the financial system. A market is a spontaneously organised system, and the financial market instability is unavoidable. In the present situation, our task is to restrict the speculative sector of finance by promoting the development of real economy, simultaneously reducing unproductive expenses on the state bureaucracy.

Key words: finance, current account, GDP.

Raksturvārdi - finanses, tekošais konts, IKP

Ievads
Introduction

Finansēs kā vērtības izteiksmē naudas formā, nestabilitāte ir vērā ņemams faktors. Naudas kustība finanšu formā ne reti nesakrīt ar materiālo vērtību apgrozību un finanšu spekulācijas ir realitāte. Līdz ar to svārstības finanšu tirgū ir neizbēgamas. Tirgus ir stihiski organizēta sistēma un krīze ir haoss, kura rezultātā rodas kārtība. Mūsu iespējas un uzdevums ir ierobežot finanšu tirgus svārstības, nepastiprinot birokrātiskās injekcijas, bet veicināt reālās ekonomikas (rūpniecība, lauksaimniecība, ražošanas infrastruktūra) attīstību, samazinot valsts neproduktīvos izdevumus, īpaši birokrātiskās struktūrās.

Darba mērķis: analizēt mūsdienu finanšu tirgus nestabilitātes faktorus un parādīt finanšu krīzes pārvarēšanas risinājumus.

Uzdevums mērķa sasniegšanai: ir spekulatīvā finanšu sektora ierobežošana reālā ekonomikas sektora attīstība un valsts administratīvi birokrātiskā aparāta samazināšana.

Pielietojamās pētījuma metodes: loģiski konstruktīvās, statistiskās un grafiskās analīzes metodes.

Diskusija un rezultāti
Discussion and results

Finanšu krīzēm ir sena vēsture. XVI gadsimtā Nīderlandē no Turcijas ievestie tulpju sīpoli radīja tirgus ažiotāžu. Šī skaistā, eksotiskā puķe tā iepatikās holandiešiem, ka tā kļuva par nozīmīgu tirgus darījumu objektu, pat par valsts simbolu. Tulpju darījumos iesaistījās visplašākie iedzīvotāju slāņi: kolekcionāri un tirgotāji, fermeri un amatnieki. Tā

kā tulpju sīpolu cenas pieauga, cilvēki saprata, ka šajā tirgū var labi nopelnīt. Sākotnēji šīs cerības attaisnojās un cenas sasniedza fantastisku līmeni. Par šķirnes Semper Augustus sīpolu varēja nopirkt karieti ar diviem zirgiem pilnā ekipējumā. "Tulpju drudzis" sita augstu vilni, daudzi ieķīlāja mājas , zemi un slēdz nākotnes darījumus par sīpolu iegādi. Nekas nav mūžīgs, kad atklājās, ka noslēgto darījumu apjomi ievērojami pārsniedz reālo tulpju sīpolu apjomu, sākās panika. Cenas strauji kritās un daudzi tulpju pircēji pārliecinājās, ka viņu ieguldītie līdzekļi tulpju sīpolu pirkšanā nebija nodrošināti ar reālām vērtībām. To pamatā bija tikai pārdevēju solījumi. Tulpju tirdzniecības burbulis plīsa.

Šis aprakstītais vēsturiskais piemērs raksturo finanšu attiecību specifiku. Un tā ir sekojoša: ja vienkāršos preču pirkšanas un pārdošanas apstākļos, pirkšanas – pārdošanas akti ir sinhroni, tie notiek vienlaicīgi, tad nākotnes tirdzniecības gadījumos naudas plūsmas iegūst neatkarību no preču plūsmām un tās var zaudēt savu materiālo pamatu. Tieši finanšu attiecības raksturo vērtības kustību naudas formā. Ar vērtību naudas formā objektīvi iespējamas manipulācijas. Šeit ir reālas naudas un preču attiecību sabalansēšanas problēmas, kas var radīt finanšu krīžu materiālo pamatu.

Atgriežoties mūsdienu pasaulē ir faktori, kas pastiprina finanšu tirgus nestabilitāti:

Vispirms, naudas apgrozījums ir kolosāls. Pēc igauņu finanšu analītiķa aprēķiniem tas sasniedz 1 miljonu kronas uz katru planētas iedzīvotāju [Tamming, 2008]. Otrkārt, finanšu sfērā vairāk kā citās, ielaužas elektronikas laikmets, vairāk kā 90% pasaules naudas apgrozījuma notiek elektroniskā formā. Katru sekundi tiek slēgti tūkstošiem finanšu darījumi ar ievērojamiem finanšu līdzekļu apjomiem.

Neviena valstiska organizācija vai "finanšu šerifu" asociācija nevar izsekot šos darījumus pilnībā, kas garantētu finanšu darījumu simtprocentīgu drošību.

Finanšu tirgus svārstības pastiprina multiplikatora – akseleratora mehānisms. Nauda rada naudu. Mūsdienu pasaulē naudas ģenerācijas iespējas paplašinās. Katrs noguldījums bankā rada kredītnaudu – tā ir ābeces patiesība. Pastāvot bezskaidras naudas apgrozībai un zemai obligāto rezervju normai, naudas multiplikators var sasniegt ievērojamu lielumu. Ja vēl ņemam vērā ārzemju banku naudas ieplūdināšanu savu meitu bankās Latvijā un sindicēto kredītu apjomu, tad pieejamo kredītu apjomi var kļūt grūti kontrolējami, īpaši nelielu un finanšu tirgiem atvērtu valstu finanšu kontroles institūcijām. Kā parāda patreizējā situācija finanšu tirgū, tad ne Latvijas Banka (LB), ne arī finanšu un kapitāla uzraudzības tirgus komisija (FKTK) nevar lepoties ar sasniegumiem finanšu uzraudzības sfērā. Tagad ir zināms, ka bijusi Parex bankas vadība saviem galvenajiem akcionāriem par depozītiem maksājuši 18%, bet ļāvuši pašiem saņemt kredītus par 2% un to nav slēpuši savās atskaitēs. Tā ir izvairīšanās no nodokļu maksāšanas un civilizētās valstīs par to draudz nopietna kriminālatbildība. Kā izskaidrot faktu, ka ne LB, ne FKTK nav iejaukušies šajos procesos?

Finanšu sistēmas attīstība un dialektika pārvērš finanses par pastāvīgu ekonomikas sfēru, sašķeļot vienoto ekonomisko telpu divās daļās: reālajā un finanšu – spekulatīvā. Bez finanšu tirgiem reālā ekonomika nevar apstāvēt, tomēr, ja spekulatīvā ekonomika sāk dominēt, rodas būtiskas ekonomikas problēmas gan Latvijā, gan citur pasaulē. Latvijā tāpat kā citās attīstības valstīs ir nacionālo finanšu avotu deficīts, tāpēc starptautiskā kapitāla piesaiste ir objektīvi nepieciešama. Problēmas rodas tad, kad gandrīz 70% no ārvalstu investīcijām Latvijā nonāk nozarēs, kuras balstās uz spekulatīviem darījumiem: finanšu starpniecība, operācijas ar nekustamo īpašumu, tirdzniecība. Aplūkojot Latvijas ekonomikas izaugsmes periodu no 2000. līdz 2007. gadam, redzams, ka visaugstākos tempus demonstrēja tieši operācijas ar nekustamajiem īpašumiem, finanšu starpniecība un tirdzniecība. Turpretim reālajā ekonomikā: rūpniecībā, īpaši augstās tehnoloģijās, lauksaimniecībā un enerģētikā attīstība bija vāja. Protams, finanšu un citu pakalpojumu sfēras pieaugums vērojams visur pasaulē, tomēr visai pamatots ir apgalvojums, ka bez modernas rūpniecības un lauksaimniecības nevar sasniegt ne labklājības, ne kvalitatīvu pakalpojumu standartus.

Tekošā konta deficīts, % no IKP
Current Account Deficit, % of GDP

	2003	2004	2005	2006	2007	2008 I	2008 II	2008*	2009*
	-8,2	-12,8	-12,5	-22,5	-22,9	-19,4	-14,6	-14	-9,9

☐ Prece - Goods ☐ Ienākumi - Income
☐ Pakalpojumi - Services ☐ Kārtējie pārvedumi - Current transferts
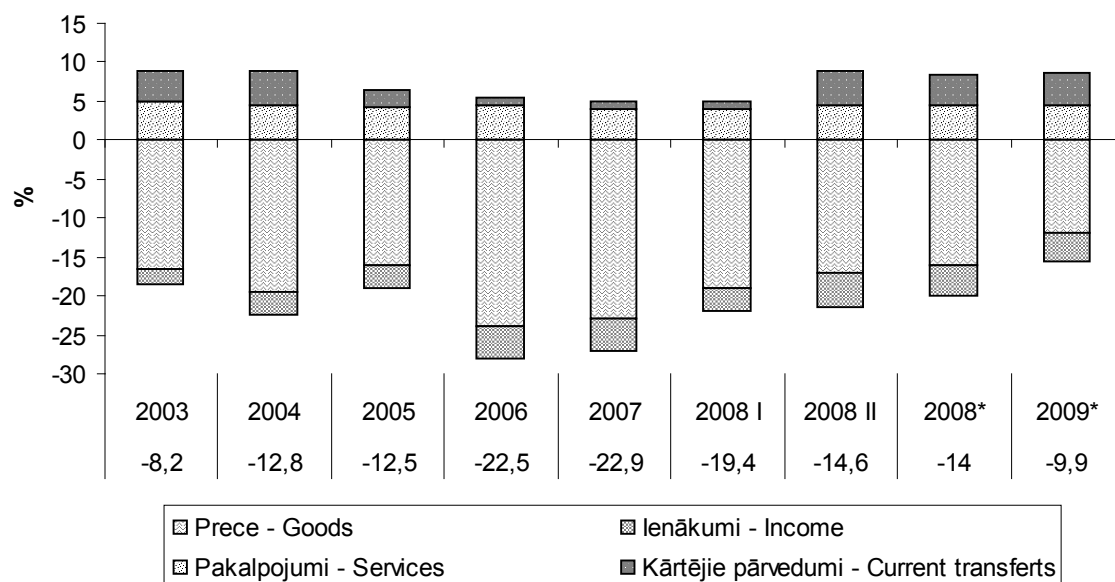
* Prognoze

Avots: CSP, FM.
Source: CSB, Ministry of Finance

1. att. **Tekošā konta deficīts, % no IKP**
Figure 1. **Current Account Deficit, % of GDP.**

Par reālās ekonomikas vājumu liecina Latvijas tekošā konta deficīts (1. attēls)

Tekošā konta deficīta līmenis Latvijā pret IKP ir augstākais ES valstu starpā. 2007. gadā tekošā konta deficīts – 22,9% pret IKP. Tas ir milzīgs tekošā konta deficīts. Salīdzinoši atzīmēsim, ka ASV šis deficīts sastāda 5 – 6% no kopprodukta, un jau tad šis deficīts rada nopietnas ASV maksājumu bilances sabalansēšanas problēmas. Tekošā konta deficīta galvenais cēlonis Latvijā ir ievērojams importa pārsniegums pār preču eksportu – 2007. gadā imports pārsniedza preču eksportu vairāk par 3 mrd. latu. Pārāk vājš eksports un liels imports liecina par reālās ekonomikas vājumu. 2008. gadā tekošā konta deficīts samazinās, kas saistīts ar eksporta pieaugumu un importa samazinājumu, tomēr arī 14,0% tekošā konta deficīts ir pārāk liels. Tā kā tekošā konta deficītu nosedz ārzemju naudas plūsmas uz Latviju, bet pasaules finanšu krīzes apstākļos šīs plūsmas ir samazinājušās. Reālās ekonomikas attīstībai jāpievērš daudz lielākā uzmanība nekā iepriekš. Cita ceļa vienkārši nav.

Tā kā Latvijas ekonomikas izaugsme lielā mērā tika balstīta ar ārzemju naudas un kapitāla ieplūdi un spekulatīvo ekonomiku, tad pasaules finanšu krīze nevarēja neietekmēt Latvijas tautsaimniecību. Ja aplūkojam 2. attēla datus par iekšzemes kopproduktu, tad redzam, ka ekonomikas izaugsme ir ne tikai apstājusies, mēs esam atsviesti atpakaļ , iespējams, pat 2000. gada līmenī, jo krīzes dziļumu un ilgumu pašreiz nav iespējams reāli prognozēt.

Iekšzemes kopprodukta krass samazinājums radīja Latvijas budžeta krīzi. Nepieciešamība aizņemties

naudu starptautiskajās finanšu institūcijās Latvijas finanšu sistēmas stabilizācijai bija nenovēršama. Bez šīs ārzemju palīdzības Latvijai reāli draudēja maksātnespēja ar visām no tās izrietošajām sekām.

Jā, mūsdienu finanšu sistēma pārdzīvo krīzi, kura ir visai nopietna. Nav apzināti daudzi šīs krīzes parametri – ilgums, dziļums, izplatība. Šī krīze ir mulsinoša, pasaules sabiedrība ir satraukta. Skan lozungi: kapitālisms ir miris, lai dzīvo Kārlis Marks! Kā visu to vērtēt?

Runājot plašākā kontekstā varētu teikt, ka ekonomiskās krīzes kopumā nav laba lieta, bet diez vai ir iespējams no tām izvairīties. Ekonomikā, tāpat kā cilvēka dzīvē ir kāpumi un ir kritumi. Daudzi ekonomiskā cikla cēloņi ir objektīvi, piemēram, pamatkapitāla atjaunošanas nepieciešamība, demogrāfiskie procesi, zinātniski – tehniskā progresa nevienmērīga attīstība. XX gadsimta ievērojamais ekonomists, 1974. gada Nobela prēmijas laureāts Frīdrihs Hajeks norādīja, ka mūsdienu ekonomika ir stihiski organizēta sistēma. [Hayen F, 1973]

Šī sistēma ir tik daudzveidīga, ka detalizēta plānošana nav iespējama. Tirgus un demokrātija ir mūsdienu civilizācijas un labklājības simboli. Neviens nopietns ekonomists nav apgalvojis, ka tirgum nav trūkumi, tas var ciest neveiksmes gan sociālās, gan ekoloģiskās sfērās. Tomēr nekas labāks par tirgus ekonomiku nav izdomāts. Mēs varam kritizēt liberāļus, tomēr jāatzīst, ka pasaulei daudz lielāku ļaunumu nodarījuši ne liberāļi, bet pasaules diktatori. Tieši tirgus ekonomika pēdējos 50. – 60. gados ir nodrošinājusi vislielāko ekonomisko
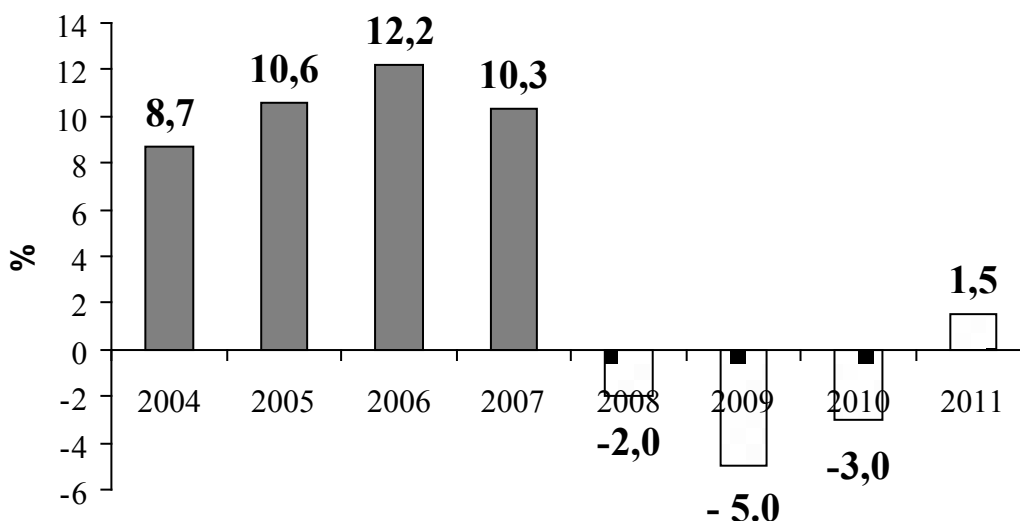
Avots: CSP, FM.
Source: CSB, Ministry of Finance

2. att. Latvijas iekšzemes kopprodukta dinamika (salīdzināmajās cenās, %)
Figure 2. **Dynamics of GDP in Latvia (at constant prices, %).**

izaugsmi tās attīstības vēsturē. Valstīs, kurā tiek realizēti ekonomiskās brīvības visaugstākie principi tiek sasniegti visaugstākie labklājības standarti. Tieši tur, kur tirgus ekonomikas principi tiek ignorēti valda trūkums un patvaļa. Jā, pasaulē ir lielas atšķirības, iespējams, ka šīs atšķirības progresē. Pasaulē ir vietas, kur cilvēku domāšanas veids feodālā laikmeta cienīgs un vēl antīkāks. Šādos apstākļos grūti sasniegt ekonomisko progresu.

Ja pieminam Kārli Marksu, tad mūsu acu priekšā ir tas sociālisms kādā mēs dzīvojām. Protams, bija bezmaksas medicīna un izglītība, lētas teātru un koncertu biļetes, bija pieejami lēti energonesēji, partija un valdība vairāk rūpējās par dzīves neveiksminiekiem. Tas nebija slikti. Tomēr neaizmirsīsim tos miljonus, kuri bezjēdzīgi tika iemesti reālā sociālisma upurtraukā, neaizmirsīsim tos miljonus, kas sevi upurēja smagā darbā, lai celtu komunisma utopiju ar primitīvu labklājību. Bet runājot par Kārļa Marksa teoriju, proletariāta varmācīga revolūcija tomēr ir bīstama. Visa cieņa strādnieku šķirai, tomēr valsti un sabiedrību ir jāvada profesionālākai sabiedrības daļai. Ja varu sagrābj ne visai izglītoti un kulturāli cilvēki, tad staļinisma vai hitlerisma recidīvi ir neizbēgami.

Mūsuprāt, mirst ne tirgus ekonomika vai kapitālisms. Finanšu krīzes pamatā ir tirgus brīvības fetišizācija, kas robežojas ar tirgus principu ļaunprātīgu izmantošanu. Ekonomikas un finanšu krīzes ir ne tikai neizbēgamas, bet arī nepieciešamas. Sprādzienam bija jānotiek, lai likvidētu to haosu, kas valdīja finanšu spekulatīvos darījumos. Tirgus negācijas uzkrājas pakāpeniski, līdz tās sasniedz

kritisko masu. Krīzes sekas mums visiem ir nepatīkamas, tomēr vislielākie zaudētāji var būt tieši spekulatīvā sektora spēlētāji. Šīs krīzes pozitīvais moments ir tas, ka daudzi šī tirgus spēlētāji būs spieti atzīt, ka nepieciešama pasaules finanšu sistēmas rekonstrukcija. Kāda tā būs? Problēma ir atklāta: vai tā būs kontroles pastiprināšana, vai paškontrole, vai atgriešanās pie zelta standarta, vai arī kaut kas cits? To rādīs nākotne.

Lai atbildētu uz šiem jautājumiem, vispirms jāapzinās cik dziļa un ilga šī krīze būs. Jo dziļāka un ilgāka, jo nepieciešamāki būs kardināli pārkārtojumi.

Mūsdienu finanšu krīzei ir globāla izplatība, tā skar arī Latviju. Tas ir loģiski, bet kāpēc tieši mūsu valsts ir nonākusi Eiropas pabērna lomā? Arī salīdzinājumā ar mūsu kaimiņiem (Igauniju, Lietuvu, Poliju) finansiālā situācija Latvijā ir visbēdīgākā. Apskatīsim dažas Latvijas ekonomiskās problēmas tuvplānā.

Latvija ir maza ekonomiskā mēroga valsts, kuras radīto kopproduktu varētu salīdzināt ar vidējas starptautiskas korporācijas apjomu. Šīs nelielās ekonomikas administratīvā aparāta uzturēšanas izdevumi ir neadekvāti šāda apjoma ekonomikai. Valsts politiskās elites radītais administratīvi birokrātiskais aparāts maksimizē savu budžetu lielāku nekā tas ir sabiedriski nepieciešams. Eiropas Savienība ir mākslīgi veidots dažādu valstu ekonomikas integrācijas modelis ar ievērojamiem birokrātijas štatiem gan nacionālā, gan internacionālā līmenī. Tas, protams, ir negatīvs faktors, kas nesekmē Eiropas konkurētspējas pieaugumu. Latvija pēc Eurostat datiem, valsts pārvaldē strādājošo skaita
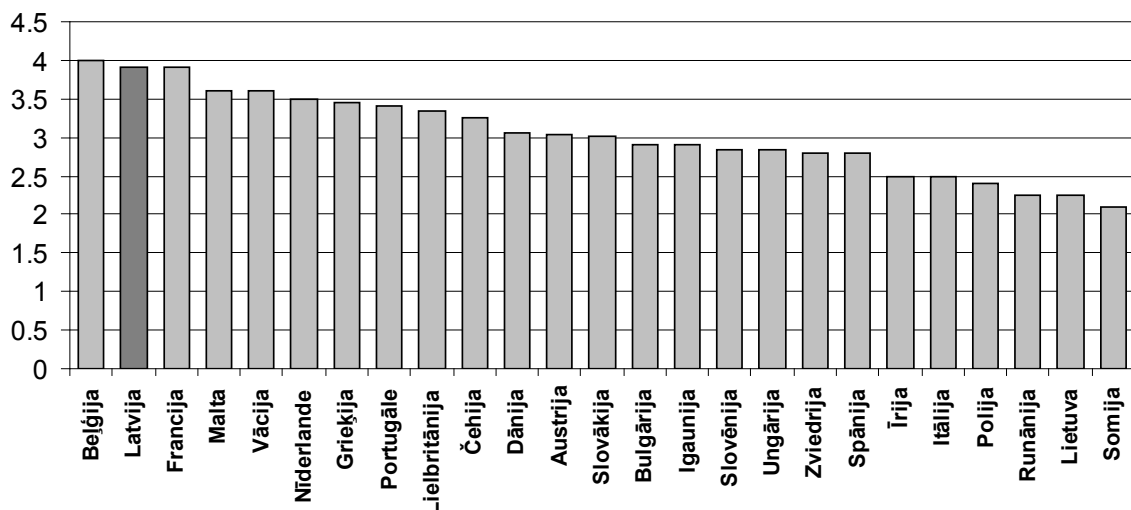
Avots: Eurostat dati
Source: data of Eurostat

3. att. **Valsts pārvaldē strādājošo skaits ES valstīs 2006. gadā, % no iedzīvotāju skaita**
Figure 3. **Number of persons employed in the state administration by the EU countries,
% of total population.**

ziņā, atpaliek tikai no Beļģijas, ES galvaspilsētas [skat. 3. attēlu].

Galvenā problēma ir tā, ka Latvijai ir grūtības ar savas birokrātijas uzturēšanu, bet šīs birokrātijas efektivitāte ir visai apšaubāma. Ja gandrīz visu ekonomisko rādītāju ziņā Latvija ieņem pēdējās vietas ES, tad detalizētāki komentāri ir lieki. Latvijas valsts budžeta statistika liecina, ka izdevuma postenis – vispārējie valdības dienesti ir vienīgie no valdības sektora izdevumiem, kas uzrāda kāpumu pat grūtajos pēdējos gados. Ja 2005. gadā izdevumi vispārējiem valdības dienestiem sastādīja 2,9% no IKP, tad 2008. gada I ceturksnī jau 5,9% no IKP. Šie izdevumi ir vairāk kā 2 reizes lielāki, nekā izdevumi veselības aizsardzībai. [Ziņ. EM, 2006, 2008]

Cīņa ar birokrātiju ir sākta, tā nebūs viegla, grūti pat prognozēt šīs cīņas rezultātu. Valsts birokrātija ilgā laika periodā ir mācījusies maksimizēt savus ienākumus, štatus un iegūt nomenklatūras labumus, komandējumus pārvērst par plezīra braucieniem. Finansējuma samazinājums ir svarīgs pasākums, tomēr tas nav vienīgais. Mums jāpārliecina augstākās valsts institūcijas par kritikas pozitīvo tēlu, mēs nedrīkstam ierobežot masu mediju brīvību, mums jāattīsta sabiedriskā kontrole, bet ,galvenokārt, jāveido apzinīga pilsoniskā sabiedrība, kas nebaidās izteikt savus uzskatus un prasīt paaugstināt politiskās elites un tās ierēdņu atbildības latiņas pacelšanu.

Kā liecina 4. attēla skaitļi darba samaksa Latvijā pēc iestāšanās ES ir ievērojami pieaugusi. Gan sabiedriskajā, gan privātajā sektorā darba algas pieaugušas gandrīz 2,5 reizes [skat. 4. attēlu]

Darba algas pieaugums pats par sevi ir pozitīvs faktors, kas liecina par darba samaksas izlīdzināšanas procesiem ES. Tomēr, darba algas pieaugums ievērojami pārsniedza darba produktivitātes pieaugumu, kas pēc mūsu aprēķiniem periodā no 2003. – 2008. gadam pieauga tikai 1,3 reizes. Tas arī bija viens no augstās inflācijas cēloņiem Latvijā.

4. attēla dati parāda vēl vienu savdabīgu sakarību, kas nav raksturīga pasaules attīstītās valstīs. Proti, darba samaksa Latvijas sabiedriskajā sektorā ir augstāka nekā privātajā. Daudzās attīstītās valstīs privātais bizness paver lielas iespējas naudas pelnīšanai. Sabiedriskajā sektorā nodarbinātajiem ir atpazīstamība masu medijos, sabiedriskā reputācija un ietekme. Valsts pārvaldes sistēmā rietumvalstīs sāk darboties cilvēki, kas savu labklājību nodrošinājuši privātajās struktūrās ar mērķi, kaut ko izdarīt sabiedrības labā un iegūt atzinību vēstures kontekstā. Ja par galveno izvirza darba samaksas līmeni, tad sabiedriskais sektors piesaistīs bezatbildīgus pašlabuma meklētājus.

Sabiedriskais sektors Latvijā raksturojas ar vēl vienu negatīvu parādību. Tas ir haoss sabiedriskajā sektorā darba samaksas jomā. Ierēdņu, pilnvarnieku, valsts uzņēmumu padomju locekļu, ministru padomnieku atalgojums ne reti pārsniedz premjerministra. Latvijas prezidenta un ministru darba algas. Runa šeit ir ne tik vien par materiālajām izmaksām, ko tik maza mēroga valsts nevar atļauties, šeit ir ievērojams morāls kaitējums, negatīva piemēra faktors. Šāds samaksas līmenis nav adekvāts,

4. att. **Mēneša bruto darba samaksa, Ls**
Figure 4. **Monthly gross weight, LVL.**
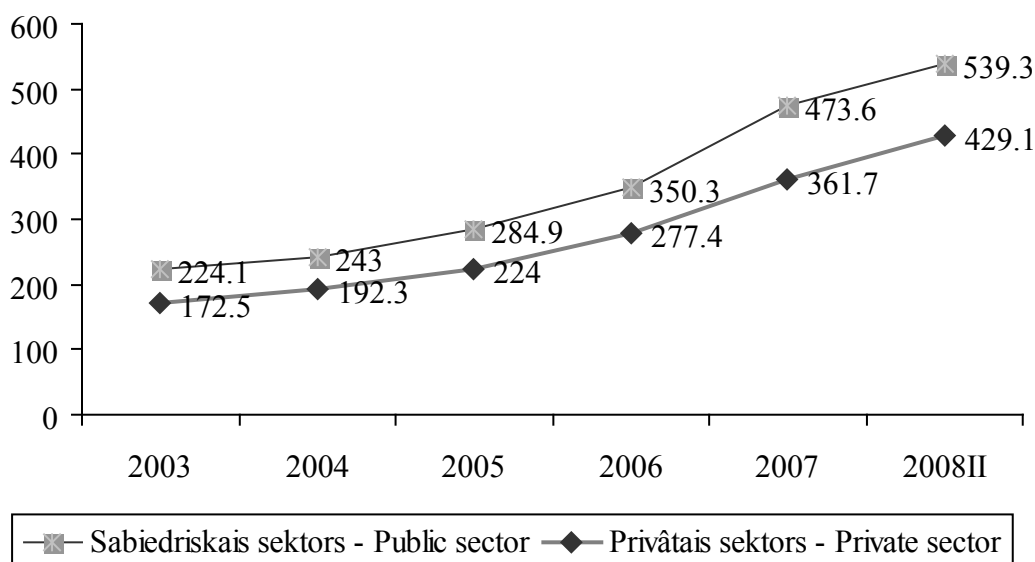
Avots: CSP, LB.
Source: CSB, Bank of Latvia

ja to salīdzina ar darba produktivitāti un darba rezultātiem.

Jebkuras Centrālās bankas neatkarība ir augstu vērtējama. Uzskata, jo neatkarīgāka no politiskiem vai ekonomiskiem spēkiem ir centrālbanka, jo augstāka tās darba efektivitāte. Arī Latvijas Banka ir valsts valstī. Ir zināma patiesība, ka baņķieri visā pasaulē pelna labi, tomēr, ja uzzinām, ka LB valdes locekļu algas ir 6 reizes augstākas nekā Igaunijā ar labākiem saimnieciskās darbības rādītājiem, bet Latvijas Bankas prezidenta alga ir lielāka nekā ASV federālo rezervju sistēmas (Centrālbankas) prezidentam, kurš. salīdzinot ar Latviju, pārvalda milzīgu finanšu impēriju, tad rodas pārdomas. Arī Zviedrijas Centrālbankas vadītājam darba alga ir mazāka nekā LB vadītājam, lai gan Latvijas ekonomikas mērogus var salīdzināt ar vieni Zviedrijas novadu [Diena, 12 dec. 2008]

Mūsu uzdevums šeit nav izvērtēt Latvijas Bankas darbības efektivitāti. LB iespējas, mūsdienu globālajā ekonomikā ir visai ierobežotas. Latvijas Banka visu uzmanību ir veltījusi nacionālās valūtas stabilitātes nodrošināšanā, maz veltot uzmanības Latvijas ekonomikas stimulēšanai. Šodienas rezultāts ir vājš reālās ekonomikas sektors, bet lata stabilitāti nodrošina ārzemju naudas injekcijas. Arī Latvijas Bankas cīņa ar inflāciju nebija sekmīga, tagadējais inflācijas samazinājums nav LB nopelns, tas ir ekonomiskā cikla depresijas rezultāts. Secinājums nav patīkams. Latvijas iekļaušanās ES finanšu institūcijās, rada situāciju, ka finanšu kontrole nacionālajā līmenī maz ko nozīmē un pēc eiro ieviešanas tā vēl samazināsies. Ne tikai valsts pārvaldē, bet arī finanšu vadības institūcijās būs nepieciešamas nopietnas izmaiņas. Ieviestā dubultkontrole (LB un FKTK) ir pārāk dārga un maz efektīva. Pēc Latvijas iestāšanās eiro zonā pilnīgi pietiktu ar vienu finanšu tirgus uzraudzības institūciju ar pietiekīgiem štatiem un adekvātu, Latvijas ekonomikas attīstības līmenim piemērotu atalgojumu.

Mēs skaram valsts finanšu sektoru, ja apskatam pasaules privāto finanšu investīciju darba samaksas praksi, tad spekulatīvā alkatība ir acīm redzama. Pasaules lielāko banku un arī korporāciju vadītāju atalgojums sasniedz kosmiskus apmērus. Daudzi pasaules analītiķi uzskata, ka tieši šie neadekvātie atalgojumi, kas nav samērojami ar korporāciju efektivitāti, ir mūsdienu finanšu – ekonomiskās krīzes cēloņi.

Var saprast mūsu zemes iedzīvotāju vēlēšanos dzīvot attīstīto valstu labklājības līmenī. "Treknie gadi", proti, ārzemju naudas ieplūde Latvijā nebija filantropija (izņemot ES fondus). Ārzemju nauda plūda uz Latviju, jo šeit varēja nopelnīt labāk nekā naudas izcelsmes valstīs. Tomēr, Latvijas finanšu sistēma izrādījās ne visai stabila. Būtu naivi domāt,

ka no globāla finanšu – spekulatīvā sektora kraha, cilvēks nebūs neko iemācījies. "Treknie gadi" neatkārtosies, pašiem sūri un grūti vajadzēs strādāt un darboties. Ja taupības režīms, galvenokārt, skars nabadzīgākos iedzīvotājus vai vidusšķiru, tas būs bīstams ceļš. Arī politiskajai un ekonomiskajai elitei sava apetīte ir jāierobežo.

Secinājumi
Conclusions

1. Ekonomika sevī ietver gan preču, gan naudas plūsmas. Finanšu uzdevums ir koordinēt abas šīs sfēras, tātad, finanšu attiecības raksturo vērtības kustība naudas formā. Finanšu nestabilitāte ir ieprogrammēta jau pašā finanšu jēdzienā, jo vērtību kustība naudas formā pieļauj finanšu autonomiju. Ja finanšu līdzekļu kustība iegūst neatkarību no sava materiālā pamata, tad spekulatīvie finanšu darījumi kļūst par realitāti.

2. Mūsdienu globālā pasaulē ar atvērtiem kapitāla un valūtas tirgiem, ar finanšu darījumu slēgšanu elektroniskā formā, pasaules finanšu impērija kļūst par monstru, kuru nekādi finanšu kontroles "šerifi" nav spējīgi izsekot. Tas vēl vairāk attiecas uz mazām, ekonomiski atkarīgām valstīm. Faktiski LB un FKTK – Latvijas finanšu tirgus uzraudzības institūcijām ekonomiskā ietekme visai ierobežota.

3. Latvijas reālās ekonomikas (rūpniecības, lauksaimniecības) attīstība ir vāja, par to liecina lielākais tekošā konta deficīts ES. Latvijas ekonomiskā izaugsme asociējas ar spekulatīvā sektora (darījumi ar nekustamo īpašumu, finanšu starpniecību) attīstību, kura pamatā bija no ārzemēm ieplūdušie finanšu līdzekļi, jo spekulatīvo darījumu burbulis šeit ļāva labi nopelnīt. Pasaules finanšu krīzes rezultātā bankrotēja spekulatīvo darījumu tirgus, Latvijas IKP strauji samazinās un budžeta krīze ir neizbēgama. Mūsdienu finanšu krīze parādīja, ka bez reālās ekonomikas attīstības ekonomiskā izaugsme ir visai problemātiska. Ārzemju finansiālā palīdzība bija nepieciešama, bez tās Latvijas maksātnespēja bija neizbēgama. Šī glābšanas operācija bija iespējama, jo mēs esam ES valsts un pieļaut kāršu namiņa sabrukumu radītu ķēdes reakciju, bet Skandināvijas valstu palīdzība bija nepieciešama, lai glābtu Skandināvu pensionāru fondus.

4. Finanšu – ekonomiskās krīzes ir dabisks process. Tās ir sāpīgas, bet tām ir sava pozitīva nozīme. Šī krīze, kas turpinās, tā nopietni atvēsinās pārāk karstgalvīgu un alkatīgu spēlētāju prātus. Spekulatīvo darījumu apjoms turpina samazināties un finanšu plūsmas pārorientējas

uz reālo ekonomiku. Tirgus ir stihiski organizēta sistēma, kas var nostādīt katru savā vietā. Tomēr finanšu tirgus rekonstrukcija būs nepieciešama, lai ierobežotu fiktīvo darījumu īpatsvaru.

5. Latvijā radīts viens no lielākajiem administratīvi birokrātiskajiem aparātiem ES ar zemu efektivitāti, par ko liecina ekonomiskie rādītāji uz ES fona. ''Treknie gadi'' tik ātri neatkārtosies, pašiem vajadzēs rūpēties par savu labklājību. Latvijā būs nepieciešamas būtiskas izmaiņas valsts vadībā un finanšu menedžmentā, lai izdzīvotu globālās konkurences apstākļos.

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Tax Stimulation of Agricultural Product Manufacturers in Georgia

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Abstract

The present research discusses the advantages carried out by the taxation from the part of the government towards agricultural product manufacturers. This research is based on the tax system and the tax code of Georgia. The study includes experiences of the foreign countries. According to these experiences agriculture has particular advantages in all the developed countries. Despite the fact that agriculture is one of the most important sectors of the country there are no advantages given from the part of the government towards it in Georgia. Agricultural product manufacturers are taxed with the same taxes as the representatives of the other sectors of the national economy. In order to improve the situation it is desirable to differentiate taxes, and to establish more advantages, since food-stuffs safety of the country depends upon the development of agriculture.

Key words: tax preferences in agriculture, government policy against farmers, tax legislation.

Introduction

High attention is paid to agricultural development and related events/procedures, which are used by government for field stimulation to ensure the country's economic development and plural food-stuffs consolidation. There are different efficient methods of stimulation, from them the most successful for farmers is tax stimulation. Tax stimulation does not contain only the wide spectrum of preferences and advantages. Our point of view is that stimulation could be tax existence itself; because the existence of rate of tax supports more income. For production's development and economic growth, high attention is paid to the introduction of efficient forms for tax stimulation and their implementation in agrarian sector. With the control of production's efficient functioning criteria, it is necessary to implement the tax stimulation in the particular sector, and severely to strengthen fight against the administration and smuggling measures. Tax system must provide the transitional economic growth. The financial stimulation of farmers and advantages in tax system are especially important to the countries under transitional economic growth stage.

Results

Agricultural taxation in the industrially advanced countries is characterised by the defined specifications. At the same time preferential procedures are held against traditional agriculture, which is provoked due to the sector's difference from others. It is characterised with the seasonal situation, climate dependence, and geographical environment. Tax policy in the agriculture is in the direction of different problem resolution, it is possible to stimulate the sector with taxation; for example, the environmental security procedures are stimulated with the low taxation. Taxation influences agricultural structure. Agriculture is sensible not only to tax rates; it also reacts on combined taxation. The fiscal goal of agricultural production taxation depends upon the elastic and none elastic demands of resources. For example, the land differs with not elastic demand, therefore with the growth of land tax rate the incomes would be arising in parallel. If the tax rate on mineral fertilisation is grown it causes the reduction of its usage. In every industrially advanced country, the system evolution is conducted by reduction of a low in force taxation quantity and rate; and secondly by the growth of tax market. Besides in the countries, where high share of the small production in the whole agriculture production exists, advantages are to be reduced and not taxes. It is necessary that the general governmental level tax in the agricultural production is homogenous and local level tax of different rates. It depends on regional goals and tasks, geographical location and local budget status and conditions. General governmental tax must be shared between the central and local budget. As to the local tax it must stay under the management of the local budget.

The agricultural tax system formation under the global scale generally started after the World War II, it was provoked by many different reasons: there was high share of the agricultural production in GDP,

more than half of the total amount of employed were working in agriculture. Since the 1980's of the past century, almost in every developed country tax reform was performed to adapt to the modern tax system due to the fast pace of the economic growth. The reforms touched the agrarian sector by taxation. The direct tax rate is importantly reduced in this sector, because high tax rate, especially income tax, was not stimulator of the agricultural production development, it was an indicator and pusher to the shadow economy. Rate reduction caused the growth of the tax base and tax administration indicator in the agriculture.

Let us overview tax stimulation procedures held against small and middle business of agrarian industry in foreign countries. For example, in Germany for the not shared profit tax is 56%, for shared profit – 36%, as to the purpose of the small and middle business stimulation; the companies with annual turnover of about EUR 10000 are not taxed. The government policy in the fiscal field is aimed to make taxation with advantages for small business. As to Italy, its fiscal field conducts 6 types of taxes, from those 4 are direct (income tax for the natural and legal entities, taxes for local and financial business), another 2 are indirect (value added tax, excise and oil product tax); the supporting procedures for the small business is that employer of the agrarian industry sector is free from any taxes for the next 10 years. There are important tax advantages in France for employers whose annual turnover growth amounts to 25%. In Japan and the USA about 1/3 of GNP is generated from the taxes. There are important taxes for those employers, which re-start production, who work and implement new technologies in their own business.

Georgian tax system has totally changed. An old code was not able to provide maximal effect, so on January 1, 2005 a new law was enforced, and it is the second tax code. Previously there existed 14 general governmental and 7 local taxes, only 5 general governmental (income tax, profit tax, value added tax, excise and oil product tax) and 1 local tax have remained.

According to the tax code in force the emphasis is paid not on the carrying out of the stimulating arrangements, but on the fiscal effect of the tax, and the emphasis is paid on receiving maximum income in the governmental budget as well. That tendency is especially noticeable towards agricultural product manufacturers.

Georgian tax system is built on two types of taxes – direct and indirect. On the tax incomes part there is more fiscal effect against indirect taxes. It is logical as direct taxes (profit tax from a legal entity, income tax from a natural entity, and property taxes) are taken out during the process of production. In Georgia, when industrial business is interrupted and stopped, forces are not loaded and the unemployment rate is high, it is impossible to mobilise direct taxes to the maximum, thus the main emphasis is paid on value added tax, excise and oil product taxes.

Despite that agriculture is a traditional branch for Georgia and agricultural products represent 40% of the total inner product there are not any advantages given from the government. This is especially revealed in the taxation field.

In Georgian tax system one of the most important taxes is income payment, which is paid by natural entities. The object for income payment tax is the annually received total income. According to new tax code, income tax has importantly changed. Until 2005 the income tax was calculated progressively; so that in parallel with the income growth, the payment rate ranged between 12% and 20%; tax was under distribution function, according to a new tax code and that function was cut out the income payment, and now it is the proportional tax with the rate of 25% from January 1, 2009. Tax is reduced to 20%. This kind of tax reduction supports employer's business activity development, but income tax total burden lies upon hired persons.

The structure of tax payment in agriculture according to industrially advanced countries follows next in Table 1.

Almost in every country income tax from natural entities and legal entities are of general governmental destination. In the industrially advanced countries land tax is a local tax, which remains in the local budget.

Also, there are specific local taxes, which are changeable according to the countries. For example, there is a tax in Germany, which is paid not by farmer but by production serving agriculture. There is also a local income tax in Italy. Income tax is under differentiation in the industrially advanced countries.

Almost in every country income tax is under the responsibility of the government. But it is shared between the local and federal budget. For example, in Germany 42.5% of total income tax remains in the federal budget, 42.5% in the land budget, 15% - in the local government structure budget. The total income of farmers employed in agriculture represents the payment base for income tax. The total income is calculated as the difference between the result taken from the employer's business income and expenditure separated for the income earned. According to that total formation of income sources of farmer are presented by all income from the production and non-production business, governmental grants and subsidy. Tax is indexed so the minimum and maximum rate is determined and according to that the tax value is changing. Besides that in every country there is a zero

Table 1

Tax types in agriculture, according to the experience and examples of the industrially advanced countries

Tax type	USA	France	Italy	United Kingdom	Germany
Income	+	+	+	+	+
Corporation	+	+	+	+	+
Property	**	+	-	+	**
Land	-	+	*	-	+
Local	+	+	+	+	+
Value added	-	+	+	+	+
From sold out	+	-	-	-	-
Social	+	+	+	+	+

+ - national tax, ** - local tax
Source: Report of the Ministry of Finance, Georgia, p. 135, Tbilisi, 2008

Table 2

Income Tax Rate in the industrially advanced countries (%)

Country	Average in the economy		In agriculture	
	Minimal	Maximal	Minimal	Maximal
Britain	20	40	20	40
Germany	15	53	15	53
Italy	27	65	12	62
USA	15	33	15	33
France	12	56,8	12	56,8

Source: Report of the Ministry of Rural and Foods, Georgia, p. 118, Tbilisi, 2008

tax/rate minimum (Germany EUR 12. 1 thousand – annual income, France – EUR 18.1 thousand).

According to Table 2 income tax rate in agriculture does not differ importantly from the general tax rate. Nevertheless the countries establish some advantages. There are 3 types of taxation regime in agriculture; those depending upon farmer's income. Taxation with advantages is implemented for small employers of agriculture. Farmers with the annual income from EUR 500 thousand to EUR 1 million belong to the second category, while farmers with income about EUR 1 million belong to the third category.

For employees of the agrarian sector there are defined advantages during the income tax payment, generally: the income of those employers whose work in agricultural production business and use tractors and combines, and do not use hired work, is free from taxation.

Profit tax takes in one of the most important places in Georgian tax system. The object of profit tax is a taxable profit, which is calculated as the difference between taxpayer's total income and sums of deduction.

Income part from agricultural business is under reinvestment in the interests of this business.

Under the profit tax rate it is necessary to take into account the experience of other foreign countries. In the industrially advanced countries (the USA, France, Germany etc.) profit tax is under differentiation; it means that different stages of profit are under different rates. For example, in the USA the corporation for the first USD 50000 pays 15%, while 25% is for USD 25 thousand and 34% is for the rest profit. That kind of rate/tax is stimulation for the small and average business development. There is no stimulatory factor in Georgian profit tax, as every production notwithstanding its business and scales is under taxation of 5% rate. We consider it as a barrier for the small and average business development.

From skew taxes in Georgian tax system general place is taken by value added tax. Tax rated object is rate operation and rate import. Value added tax payers

are natural and legal entities, who perform economic business and whose total sum of operation during the uninterrupted 12 calendar months exceeds GEL 100000 (EUR 43000). As of July 1, 2008 the tax rate is 18%. Persons involved in agricultural business and supplying agricultural production become tax free.

Property tax is very important for the employees of agricultural sphere for the purpose of paying agricultural and non-agricultural land taxes.

Agricultural destination having land tax's rate is subject to the person, who is the owner of the land in compliance with Georgian local law or is the actual owner of the land which is under the governmental ownership. Actual ownership means actual ownership or usage of land. Taxation subject is the land under ownership. On the agricultural land property tax basis rate is differentiated according to the administrative territorial units and land quality; and it is determined once in a year calculated per one hectare in national GEL. Agriculture destination having land tax is calculated according to the tax rate reproduction in quantity for land area space (hectares). There are considered tax advantages, generally tax free is land ownership by natural entity from March 1, 2004 owing about 5 hectares.

We consider that kind of tax advantage will provoke reduction of land efficiency. It is obvious, agricultural area having land tax was characterised by low fiscal characteristics, its existence was proven as tax existence has forced land owners to use their land at maximum. In the case of tax absence, the land owner uses only that area, which is easy to be farmed on and does not require special treatment. Currently the existence of unprocessed lands is caused. On the contrary, land tax administration is connected with different complications.

One of the main problems not only in agrarian industrial complex, but also in the whole economy is countless business and according to that government budget losses. It is true that Georgia has entered new taxation code, which has strengthened administrative procedures, but there are still shadow economics and not registered businesses that cause tax rate losses. In total the budget losses from not registered and shadow economics belonged sector are very important.

Conclusions and proposals

A wide spectrum of advantages that would support the development and solution of governmental food security problems is necessary to stimulate employees. Advantages shall be spread on plural raw materials and ready productions. We consider that agricultural production tax advantages shall involve the following aspects:

− It is necessary for the employees of agriculture to receive advantages in income and profit tax fields; it is also important t differentiate the profit tax according to the income sums.

− It is important to establish multistage taxes, especially in the indirect taxes system.

− Advantage types shall be introduced for the stimulation of small and medium businesses.

− At the scale of the EU general criteria for the agriculture production employer's advantageous taxation shall be established.

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Use of the EU Public Funds in Agriculture on the Example of the Western Pomeranian Region

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Abstract

The paper presents an evaluation of the European Union public funds' absorption in the Polish agriculture after accession to the Community. Particular emphasis has been placed on the relations between the Rural Development Programme (RDP) and structural changes in agriculture of the Western Pomeranian Province.
Key words: EU public funds, agriculture, Western Pomeranian Province, Rural Development Programme (RDP), structural changes.

Introduction

As shown by the experiences, access to the EU funds and their inflow in the first years, the most visible sign of a particular country's membership in the European Union is the influx of the Union funds. Spectacular effects of this membership, such as a resulting economic growth and increased standard of living may appear only after a few or several years. For the time being the EU funds arouse a lot of emotions, and are perceived as a chance to improve the financial situation of beneficiaries as well as the organisations which serve the latter in a different way (banks, consulting companies etc.).

Becoming a member of the European Union provided Poland with an access to the community Structural Funds. The size of the offered support (in the period of 2004-2006 is EUR 12,809.7 million; in the period of 2007-2013 it will be ca EUR 59,650.00 million considerably exceeds the previous transfers within the frame of Accession Funds (PHARE II, ISPA, SAPARD), or the earlier editions of assistance programmes (among others PHARE). Thus, the access to the Structural Funds became an important factor of Poland's economic growth, which significantly differed from the level of economic growth reached by the "old" Union (EU-15).

From the point of view of agriculture and food economy an important consideration is absorption of resources available from the EU agricultural funds, chiefly those earmarked for the modernisation and restructuring of the agricultural sector. Entrusting the agricultural policy implementation to special governmental agencies (the Agency for Restructuring and Modernisation of Agriculture and Agricultural Market Agency as accredited the EU payment agencies) at the beginning of the system transformation meant that an **institutionalised model of intervention on agricultural market** had been adopted in Poland.

Its aim was to decentralise the institutions which influenced the agriculture restructuring process, and to increase the effectiveness for the use of direct instruments.

The act on public finances dated June 30, 2005 treats the EU budget resources as **public ones**. Among others they include resources from the Structural Funds and the Cohesion Fund as well as from the European Agriculture Guidance and Guarantee Funds, Guarantee Section. Therefore, the union funds are an element of the state's public finances [**5**.**2005**]. The whole contribution paid by Poland for the common budget is transferred from the state budget, while most EU transfers are not included in the state income, supplying such beneficiaries as farmers, entrepreneurs or territorial local government entities. The state budget also provides resources earmarked for the pre-financing of Union transfers, which are classified as state budget outgoings, while the refund sums from the EU budget constitute the state budget income. According to the assessment by A. Zawojska, out of each sum of PLN 100 transferred from the European Union to Poland in the programming period 2004-2006 – PLN 27 were directed for the needs of agricultural policy. Almost half of this sum was earmarked for the development of rural areas, and 40% - for direct subsidies [**6, 2007**].

The aim of this article is to present the results of the first period of using the Union funds in Poland in the sector of agriculture. The analysis concerns the completion of activities planned in the strategic document – National Development Plan for 2004-2006, which created a basis for a new model of Polish regional policy, implemented in connection with Poland's accession to the European Union, following the model of Greece, Ireland and Portugal. During examination, the following research methods were applied:

1) secondary data analysis – this method was employed at the stage of collecting data available in the Managerial Information System of the Agency for Restructuring and Modernisation of Agriculture in Warsaw,

2) analysis of strategic documents – this method was used when analysing the basic documents describing the state policy with regard to agriculture and rural areas, e.g., National Development Plan "*Coherent Structural Policy for Rural Areas and Agriculture Development*".

The obtained results present the degree of using the public union funds, taking into consideration the structure resulting from *Operational Programmes* included in the *National Development Plan* as well as beneficiaries' structures, within which territorial local government entities have been distinguished. In each case, the main focus was the analysis of regional differentiation of the absorption process, which allows determining the effect of the EU public funds on the changes in the level of regional development inequalities in Poland.

The use of pre-accession EU public funds as well as the resources from the programming period for 2004-2006 in the agricultural sector at the level of the country and the Western Pomeranian Region

1. SAPARD programme

Special Accession Programme for Agriculture and Rural Development **SAPARD,** which was created for Poland and 9 other countries of the Central-Eastern Europe applying for membership in the European Union, and functioned in the period of 2000-2003. The value of resources granted to Poland by the European Union under SAPARD programme reaches an average of ca. EUR 177 million annually, which has been chiefly earmarked for subsidies (that is non-repayable support) in the following areas:

a) improving the competitiveness of the Polish agriculture and agricultural-food processing industry, both on the domestic and international market;

b) adjusting the agricultural-food sector to the conditions of the Single Market with regard to sanitation, hygienic, and quality requirements;

c) support for the multi-functional development of rural areas through the development of technical infrastructure and creating conditions to undertake non-agricultural activities in the countryside.

Basing on the analysis of the situation in rural areas, the Ministry of Agriculture and Rural Development in Poland has chosen the following actions for our country:

a) **Action 1: Improvement of the processing industry and marketing of farm and fish products** (beneficiaries included entrepreneurs as well as farm producers' groups and their unions);

b) **Action 2: Investments in farmsteads** (beneficiaries were farmers);

c) **Action 3: Development and improvement of rural areas infrastructure** (beneficiaries included communes, commune unions, and districts);

d) **Action 4: Differentiation of the economic activities in rural areas** (beneficiaries included farmers, household members, entrepreneurs, inter-communal unions as well as non-governmental organisations);

e) **Action 5: Agricultural-environmental programmes and forestation;** Team-Committee for SAPARD Programme Monitoring in December 2003 took a decision to resign from Action 5. This decision resulted chiefly from the forthcoming term of Poland's accession to the European Union – agricultural-environmental programmes were to be completed within the scope of Rural Development Plan for 2004-2006;

f) **Action 6: Professional training** (training programmes for potential beneficiaries of the Programme);

g) **Action 7: Technical assistance** (seminars and conferences for potential beneficiaries of the Programme).

The final allocation of SAPARD programme funds, slightly differing from the original one, has been presented in Table 1.

Taking into consideration all the resources, the final value of funds within the SAPARD programme in the period of 2000-2006 is as follows (sums given in EUR):

1. EU public funds: 1 258 133 702 (75% of contribution)
2. Domestic public funds: 418 966 405 (25% of contribution)
3. Total public funds: 1 677 100 107 (63% of balance)
4. Private resources: 992 480 410 (37% of balance)
5. **Total SAPARD programme financing: 2 669 580 517 (100% of balance)** [**3,** p. 40]

On the part of beneficiaries the completion of SAPARD programme with regard to Actions 1 – 4 was as follows (Table 2):

Table 1

Final allocation of SAPARD Programme funds for particular actions (sums given in EUR)

Item	Action	Maximum share of the EU resources in the period of 2000-2006
1.	Improvement of the processing industry and marketing of farm and fish products	410 722 688
2.	Investments in farmsteads	192 416 864
3.	Development and improvement of rural areas' structure	494 175 908
4.	Differentiation of economic activities in rural areas	131 085 537
5.	Professional trainings	24 744 773
6.	Technical assistance	4 937 932
7.	**TOTAL**	**1 258 133 702**

Source: Materials provided by ARiMR (Agency for Restructuring and Modernisation of Agriculture), Report [**3, 2007, p. 39**]

Table 2

Implementation of SAPARD programme within the scope of Actions 1 – 4 at the end of 2006 (data given in PLN)

Action	Number of assistance applications filed	Number of concluded contracts	Sum	Payments made	Sum
1	**1 778**	**1 342**	**1 663 607 542,29**	**1 336**	**1 525 052 861,63**
2	**15 586**	**13 742**	**636 540 136,90**	**12 929**	**588 511 151,44**
3	**6 230**	**4 493**	**2 023 563 052,48**	**4 637**	**2 014 526 964,86**
4	**7 504**	**4 854**	**435 183 487,86**	**4 325**	**342 256 247,20**
Total	**31 098**	**24 431**	**4 758 894 219,53**	**23 227**	**4 470 347 225,13**

Source: data provided by ARiMR

At this point one might ask a question: how SAPARD funds improved the incomes of farmers who were the Programme beneficiaries. According to the data provided by a monitoring survey of the Agency for Agriculture Restructuring and Modernisation, an increase in the total income of farmsteads included in **Action 2** in per cent of the current prices, calculated from the formula [(total future agricultural income/ total current agricultural income) – 1] x 100, divided into particular provinces reached the following values:

As shown in the provided calculations, the West Pomeranian Province (2nd place) belonged to the group of the most privileged beneficiaries of the SAPARD programme in Poland, although the presented calculations should be treated with caution, as Polish farmers, including SAPARD Programme beneficiaries, are not obliged to keep farm accountancy, which makes it impossible to rely on another source of information concerning the change of income level than voluntary statements made by beneficiaries themselves. Difficulties involved in obtaining of the reliable data on both macro and micro scale (e.g., the level of commune) also results form the fact that the union FADN system was based on another sample than the surveyed group.

On the contrary, indisputably the SAPARD programme investments have contributed to a better use of production factors in Polish farmsteads, which is confirmed by GUS (Central Statistical Office) data on the value of agricultural production, as calculated per 1 ha of arable land in individual farmsteads. It shows that in the period of 2002-2006 an average total value of production increased by PLN 741 (ca. EUR 185). For particular types of production the data provided by GUS for the above mentioned period reached respectively:

a) plant production – growth from PLN 1 782 to PLN 2 068 (+ PLN 286),
b) animal production – growth from PLN 1 598 to PLN 2 053 (+ PLN 455) [**4, 2007, p. 58**]

Table 3

An increase in the total agricultural income of farmsteads included in SAPARD of Action 2

Item	Province	% of agricultural income increase
1	Lubuskie	126
2	**West Pomeranian (Zachodniopomorskie)**	**107**
3	Podkarpackie	99
4	Łódzkie	88
12,13	Wielkopolskie, Warmińsko-Mazurskie	45
14	Małopolskie	44
15	Pomorskie	43
16	Opolskie	39
	POLAND	**54**

Source: [**3, 2007, p. 97**]

The positive effect of SAPARD funds was also noted by *Eurostat*, which stated that in the period when the accession programmes were in force the current prices of production from 1 ha in Polish agriculture increased from PLN 2 806.0 in 2000 to PLN 4 000.5 in 2006 (growth by 42.4%), while the value of production as calculated for 1 fully-employed person rose from PLN 20 039.5 (2000) to PLN 28 180.00 in 2006 (own lists on the basis of Eurostat) (own comparison based on EAA Eurostat materials and those of the National Research Institute of Agricultural and Food Economics (IERiGŻ-PIB) and the Agriculture and Environment Statistics Division of the Central Statistical Office (GUS)).

2. European Union's public funds for agriculture in the programming period of 2004-2006

Poland's accession to the European Union provided possibilities to considerably increase the Union's co-financing of pro-developmental enterprises, compared with the period before accession. According to the principle of complementarity followed within the European Union, the actions specified in the *Community Support Framework* in Poland in the years 2004-2006 were completed with the support of domestic resources and supplemented by the Structural Funds. The structure of the state budget was as follows: (2003)

1. public resources EUR 11,411.9 m (83.0%)

a) from Structural Funds' resources: EUR 8,275.8 m (72.5%)

b) from domestic resources, i.e., the state budget, territorial local governments' budgets and others EUR 3,136.1 m (27.5%)

2. private resources EUR 2,361.2 m (17.0%)

The total sum amounting to EUR 13,733.1 m was supplemented by the Cohesion Fund resources (EUR 4,178.6 m) and the resources of Community Initiatives: INTERREG (IW INTEREG) (EUR 221.4 m) and EQUAL (IW EQUAL)(EUR 133.9 m). Thus the size of the *Community Support Framework* budget in Poland for the years of 2004-2006, taking into consideration all the financing sources, reached more than EUR 18.2 billion.

The *National Development Plan/Community Support Framework* was implemented by means of six **Operational Programmes** and their executive documents called *Supplements*:

a) *Sectoral Operational Programme – Human Resources Development (SPO-RZL)*

b) *Sectoral Operational Programme – Enterprises Competitiveness Growth (SPO - WKP)*

c) *Sectoral Operational Programmes – **Restructuring and Modernisation of Food Sector and Rural Areas Development (SPO – ROL)***

d) *Sectoral Operational Programme – Transport (SPO – TRANSPORT)*

e) *Regional Development Integrated Operational Programme (ZPORR)*

f) *Financial Instrument for Fisheries Guidance (SPO – RYBY)*

Despite the fact that the programming period of 2004-2006 in the European Union is the matter of the past, the term of final settlement of the allocated resources expires by the end of Quarter I of 2009, which means that we have an incomplete picture of suing the public and other (budget) resources. In the regional perspective the allocation of resources for some Operational Programmes and Actions connected

with the agricultural sector may be presented as follows:

A. Sectoral Operational Procedure "Restructuring and Modernisation of Food Sector and Rural Areas Development"
A1) Action 1.1 Investments in farmsteads:
Poland
1. The limit of resources for the action: PLN **2 221 052 969.00**
2. **The number of applications filed: 42 582**
3. **The sum of requested support: PLN 4 573 355 807.86**
4. **The value of concluded contracts: PLN 2 492 707 669.53**
5. **Payment sums: PLN 2 385 185 700.00**

The Western Pomeranian Province:
1. **The number of applications filed: 1 296**
2. The sum of requested support: PLN 203 910 028.75
3. The value of concluded contracts: PLN **85 305 190.71**
4. Payment sums: PLN **81 824 290.64**

A2) Action 1.2 Facilitating young farmers to start their activities
Poland:
1. The limit of resources for the action: PLN **708 011 058.00**
2. **The number of applications filed:** 18 858
3. **The sum of requested support: PLN** 942 900 000.00
4. **The value of concluded contracts: PLN** 707 550 000.00
5. **Payment sum: PLN 707 550 000.00**

The Western Pomeranian Province:
1. **The number of applications filed:** 586
2. The sum of requested support: PLN 29 300 000.00
3. The value of concluded contracts: PLN 21 650 000.00
4. Payment sum: **PLN 21 650 000.00**

A3) Action 1.5 Improvement of the processing industry and farm products marketing
Poland:
1. The limit of resources for the action: PLN **1 805 951 945.00**
2. **The number of applications filed:** 1 646
3. **The sum of requested support: PLN** 2 928 442 872.33
4. **The value of concluded contracts:** PLN 1 802 927 751.08
5. **Payment sums: PLN 1 427 616 652.52**

The Western Pomeranian Province:
1. **The number of applications filed: 40**
2. The sum of requested support: PLN 173 218 956.00
3. The value of concluded contracts: PLN 39 892 521.00
4. Payment sums: **PLN 22 798 391.50**

A4. Action 2.4 Differentiating the agricultural and agriculture-related activity in order to ensure a variety of activities and alternative income sources
Poland:
1. The limit of resources earmarked for the action: PLN **303 055 130.00**
2. **The number of applications filed**: 7 170
3. **The sum of requested support: PLN** 524 782 386.36
4. **The value of concluded contracts**: PLN 297 713 624.81
5. **Payment sum: PLN 273 095 779.51**

The Western Pomeranian Province:
1. **The number of applications filed:** 144
2. The sum of requested support: PLN 11 441 493.00
3. The value of concluded contracts: PLN 5 034 594.50
4. Payment sum: **PLN 4 413 451.92**

A5. Action 2.6 Development and improvement of agriculture-related technical infrastructure
Poland:
1. The limit of resources for the action: PLN **154 701 184.00**
2. **The number of applications filed**: 4 953
3. **The sum of requested support: PLN** 261 049 632.59
4. **The value of concluded contracts**: PLN 154 757 602.84
5. **Payment sum: PLN 144 300 279.14**

The Western Pomeranian Province:
1. **The number of applications filed:** 65
2. The sum of requested support: PLN 6 185 318.29
3. The value of concluded contracts: PLN 3 971 931.00
4. Payment sum: **PLN 3 274 444.50 [1]**

B. Rural Development Plan
B1, Action 1. Structural pensions PROW 2004-2006
Poland:
1. **The number of issued decisions: 54 028**
2. Payments made: PLN **2 083 777 851.70**

The Western Pomeranian Province:
1. The number of issued decisions: 1 328
2. Payments made: PLN **52 081 215.92**

B2. Action 2. Low-commodity farms support

Poland:
1. The number of issued decisions: **172 570**

2. Payments made: PLN **1 316 364 769.54**
The Western Pomeranian Province:
1. The number of issued decisions: 2 112
2. Payments made: PLN **12 961 767.70**
B3. Action 3. Support for agricultural activity in the areas characterised by unfavourable conditions (campaigns 2004, 2004, 2006):
Poland:
1. The number of issued decisions: **2 052 722**
2. Payments made: PLN **2 708 149 237.64**
The Western Pomeranian Province:
1. The number of issued decisions: 53 742
2. Payments made: PLN **166 218 871.97**
B4. Action 4. Support for agricultural-environmental enterprises and the improvement of animals' well-being
Poland:
1. The number of issued decisions: **207 886**
2. Payments made: PLN **814 871 269.85**
The West Pomeranian Province:
1. The number of issued decisions: 11 755
2. Payments made: PLN **118 633 673.63**
B5. Action 6. The adjustment of farmsteads to the EU standards
Poland:
1. The number of issued decisions **72 669**
2. Payments made: **PLN 2 436 665 157.74**
The Western Pomeranian Province:
1. The number of issued decisions: 1 244
2. Payments made: PLN **39 159 286.12**
B6. Action 7. Agricultural producers' groups
Poland:
1. The number of issued decisions: **103**
2. Payments made: PLN **24 197 882.87**
The Western Pomeranian Province:
1. The number of issued decisions: 7
2. Payments made: PLN **1 009 127.61 [1]**

Summing up the conducted analysis on the territorial structure of the Structural Funds' beneficiaries, taking into particular consideration the Western Pomeranian Province, it has to be emphasised that in the period of 2004-2006 stable regularities were achieved in the access to as well as the use of the Union's and domestic public funds, including the agricultural sector. Without prejudging whether the West Pomeranian Region has sufficiently used the possibilities related to the absorption of resources for the agricultural sector, it should be noted that this question may also refer to the remaining 15 provinces – however, the phenomenon of a relatively stable structure of territorial "consumption" of the discussed Funds is regularity.

Conclusions

1. The biggest advantage and achievement of the SAPARD Programme has become the fact that irrespective of the positive evaluation of its use, it provided Poland with a possibility to gather experiences and institutional knowledge within the scope of the implementation of the EU programmes financed by its public funds. Among the numerous accession programmes, SAPARD was the one which most contributed to the good functioning of candidate countries (including Poland) within the EU structures after accession.

2. We have to wait for a full analysis of the Structural Funds implementation from the programming period of 2004-2006; however, if we concentrate on the actions (Operational Programmes), we can see the drawbacks resulting from the colliding interests – public resources beneficiaries – decision-makers. Eliminating the observed barriers – including the bureaucratic ones – when combined with a better promotion of funds may only have a positive effect on the use of allocated funds.

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Exchange Rate and Polish Trade in Agricultural and Food Commodities with the European Union

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Abstract

The main aim of the paper is to present the influence of changes in the exchange rate of zloty in comparison with euro on the parameters of the Polish trade of agricultural and food commodities with the European Union. The research period covers the years from 2004 to 2007.
The role of the exchange rate of zloty in comparison with euro was diversified for parameters of foreign trade with the European Union. The most significant parameter was the influence of the real exchange rate of zloty on the import. Strengthening of zloty in the period of 2004-2007 was accompanied by a significant increase in import. The applied power function allows concluding that the quarterly volumes of import were explained by the average quarterly exchange rates of zloty in 56%; whereas zloty's appreciation had small influence on the level of export. Other factors stimulating the Polish market, like increasing demand for the Polish food in the EU, cancelling of administrative barriers or rise of efficiency in Polish firms were the most important factors in this field.
Key words: exchange rate, zloty appreciation, export, import, balance of foreign trade.

Introduction

Participation in international exchange is one of the numerous ways to increase the competitiveness of economy, markets, and firms, which means they are more able to create much income (wealth) using accessible resources and gaining higher efficiency of operation [The Word… 1995]. Volume of trade is determined by a lot of factors. The exchange rate is one of them.

The main aim of the paper is to present the influence of changes in the exchange rate of zloty in comparison with euro on the parameters of the Polish trade of agricultural and food commodities with the European Union.

The research period covers the years from 2004 to 2007. All quantities representing the Polish foreign trade consider data at the end of the presented periods, which means the end of a year and quarters. Descriptive method as well as statistical and econometric methods were used in the study.

The exchange rate and foreign trade in the theory

The exchange rate is a price of one currency expressed in the other currency. Similarly like other economic categories, it depends on many factors. In a short period it is determined by levels and expectations of interest rate as well as assets' profitability in different currencies, conclusions drawn from fluctuations of the exchange rate in the past, monetary speculation, interventions of monetary authorities, and political changes. The group of factors influencing to a larger extent in a long period consists of: real rates of economic development as well as inflation in the country and outside, changes in the balance of trade and administrative conditions of capital flow and foreign trade. Their influence is different on the fixed exchange rate (in long-period) and on the floating exchange rate [Drabowski 1985]. Such large number of factors as well as intensity of their power cause that nowadays there are a lot of theories explaining changes of the exchange rates, for example, the theory of purchasing power parity, theory of elasticity, or the theory of resources [Chrabonszczewska, Kalicki 1996].

The influence of the exchange rate on the whole economy depends on how much it is open in a particular country; whereas the influence on foreign trade is complete. An impulse, which means the change in the exchange rate, can be indirect or direct. In the situation of the fixed exchange rate, its devaluation or revaluation is made by the authorities; whereas in the system of the floating exchange rate its value is determined by market.

Relationship between the exchange rate and foreign trade is mutual. Changes in the exchange rate influence the balance of trade as well as the changes in the balance of trade determine the exchange rate of national currency. In this place the influence of the exchange rate on foreign trade will be presented. Impact of the exchange rate on export and import

can be lighter in real economy than it is supposed by theoretical relationships. It results from the existence of many factors determining the level of foreign trade balance. The exchange rate is only one of them, sometimes more important, in other cases less important.

Let us assume that that exchange rate is conditioned directly by the central bank, and that it decides on devaluation of national currency. The change in the exchange rate influences directly export and import, and indirectly the national production and inflation. There are a lot of causes, which modify power and time of its influence. The decrease in prices of export commodities expressed in foreign currency and the increase in prices of import commodities expressed in this currency are automatic results of the central bank's decision. The rise of export competitiveness and decline in import competitiveness leads to surplus in the balance of trade. The primary reaction of economy can take place relatively slow despite the fact that devaluation leads to increase in volume of net export [Begg, Fischer, Dornbusch 2003]. Therefore it can make the balance of trade worse in the first period (this process is represented by the J curve) in spite of making it better. It is conditioned by the price elasticity of demand for exported and imported goods, which can be low at the beginning, for example, as the result of implementation of former accepted agreements. This problem is presented by the famous condition of Marshall-Lerner:

$$e_x + e_m > 1,$$

where:
e_x – price elasticity of demand for exported goods,
e_m – price elasticity of demand for imported goods.

Further changes in economy and balance of trade depend on elasticity of global supply as well as speed of adaptations. According to supporters of the new Keynesian economics, free resources of production factors as well as fixed prices and wages in economy provide the increase in production and employment as results of larger global demand. There is also small rise of prices caused by more expensive import. According to other theories, lack of free production factors as well as inflation expectations quickly leads to the increase in prices in real economy. Growth of inflation declines competitiveness of export and causes its decrease. If national prices and wages increase at the same rate as currency was devaluated, export will decline to former volume. Contemporary approaches deriving from neoclassical theories prove that there is only one result of national currency devaluation – the same proportional increase in prices whereas real values remain the same. However, a lot of economists say that the influence of changes in the exchange rates is small because [Drabowski 1985]:
— market structure does not allow to large increase in prices of import,
— importers change commodities and trade partners,
— price and income elasticity change as time goes by.

The level and structure of the Polish foreign trade of agricultural and food commodities

There was adverse balance of the Polish foreign trade in the analysed period of 2004-2007. The most significant one took place in 2007, i.e., 70272 million zlotys (Table 1). This value was conditioned on the

Table 1

Value of foreign trade turnover [million zlotys]

Position	2004	2005	2006	2007
Total export	272102	288781	343910	**386555**
Total import	325596	328192	394157	**456828**
Total balance of trade	-53494	-39411	-50247	**-70272**
Export of agricultural and food commodities	23805	28915	33546	**38277**
Import of agricultural and food commodities	20046	22154	25325	**30618**
Balance of trade of agricultural and food commodities	**3759**	**6761**	**8221**	**7659**

Source: Rocznik Statystyczny RP, GUS, Warszawa 2006, Handel zagraniczny produktami rolno-spożywczymi. Stan i perspektywy, IERiGŻ-PIB, ARR, MRiRW, nr 27, April 2008 and author's calculations

one side by maintaining high increase in demand in the Polish economy, on the other one some reduction in demand of main trade partners. Increase in deficit of the balance of trade taking place since 2006 means that dynamics of export was lower than dynamics of export. Export rose by 19% per year in 2006, 12.4% in 2007, whereas the import increased by 20.1% in 2006 and 15.9% in 2007.

Balances of trade of agricultural and food commodities were different than total values of the balance of foreign trade. There was surplus in every year (Table 1). The largest one took place in 2006, i.e., 8221 million zlotys; whereas the largest year growth of balance took place in 2007 and was at the level of 80%. Values of surplus as well as their dynamics were mainly results of Poland accession to the European Union, and as a consequence of decrease in trade costs. Despite the well developed Polish food industry, its role in the export and import is small. The proportion of the agricultural and food export in the total export was at the level of 9.9%, whereas the import at the level of 6.7% in 2007.

The analysis of geographical structure of foreign trade of food and agricultural commodities clearly shows the dominating position of the European Union in this exchange (Figure 1). Its proportion in the Polish export was on the level of 81% (31004 zlotys) in 2007, whereas in the import 67% (20514 zlotys). As far as the most important countries in case of the export are considered, they all are the members of the EU: Germany, Great Britain, the Czech Republic, the Netherlands, and Italy. Germany was also the largest importer to Poland. As far as the export is considered, the Commonwealth of Independent States was on the second place. However, the analysis of the import provides that its role was considerably smaller. The importance of exchange with this organisation remains on the stable level. The group of members of the CIS, which are the most important Polish partners, consists of Russia, Ukraine and Belarus. All export directed by Polish firms at markets of developed countries and countries from the Central and Eastern Europe was at the level of 93.3% of export of agricultural and food commodities (92.3% in 2006) [Handel zagraniczny I-XII 2007].

Commodity structure of foreign trade can be presented according to different classifications. Using SITC (Standard International Trade Classification), it should be concluded that the most important role in the agricultural and food commodities export in 2007 were played by food and living animals (32491 million zlotys). They also played the most significant role in the import (24170 million zlotys). However, according to CN (Combined Nomenclature), the main proportion of the Polish export was processed food (16443 million zlotys). The same concerns also the import (12746 million zlotys) [Handel zagraniczny I-XII 2007].

The exchange rate of zloty/euro and trade in agricultural and food commodities with the EU

The floating exchange rate has been used in Poland since 2000. The exchange rate of zloty in comparison to euro was appreciated in the period 2004-2007 (Figure 2). The nominal exchange rate increased by 23.4%, whereas the real by 24.5%. It resulted from similar inflation rates in Poland and in the European Union.

Theoretical relationship says that *ceteris paribus* appreciation of zloty causes decrease in the volume of national export. The analysis of levels of the exchange rate of zloty in comparison to euro, and levels of the Polish export of agricultural and food commodities to the European Union in the years 2004-2007 proves that this relationship did not take place (Figure 3). The real exchange rate increased

Export   Import
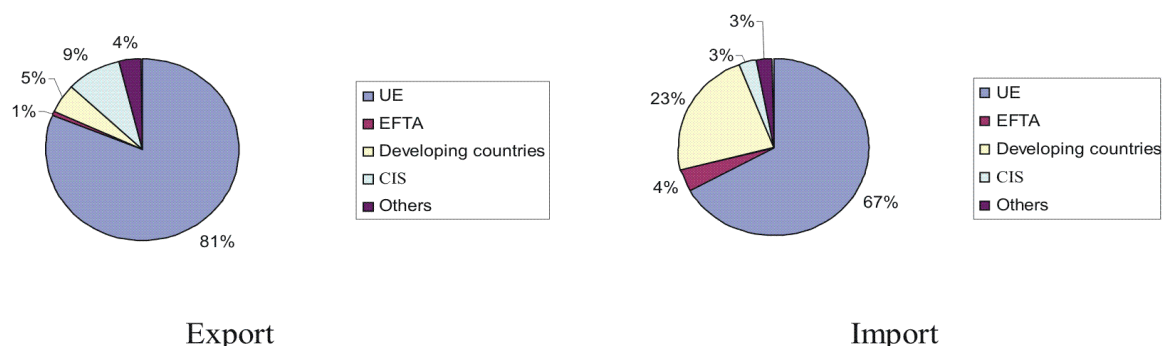
Source: Handel zagraniczny produktami rolno-spożywczymi. Stan i perspektywy, IERiGŻ-PIB, ARR, MRiRW, nr 27, April 2008.

Figure 1. **Geographical structure of the Polish foreign trade in food and agricultural commodities in 2007.**
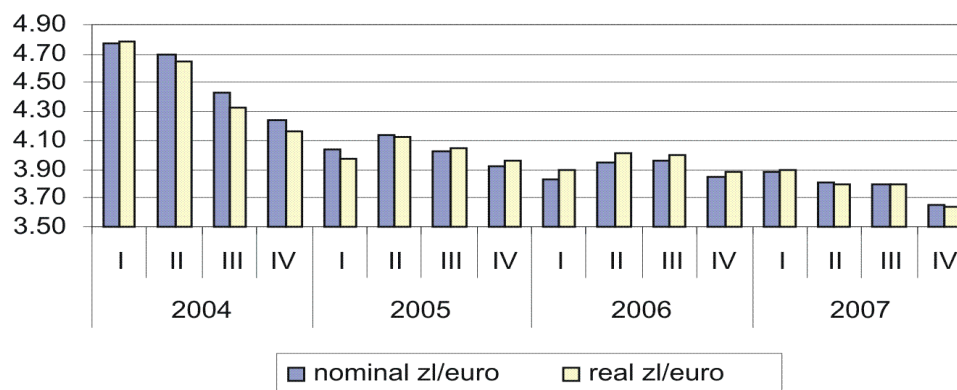
Source: www.nbp.pl and author's calculations.

Figure 2. **The level of the exchange rate of zloty in comparison to euro**
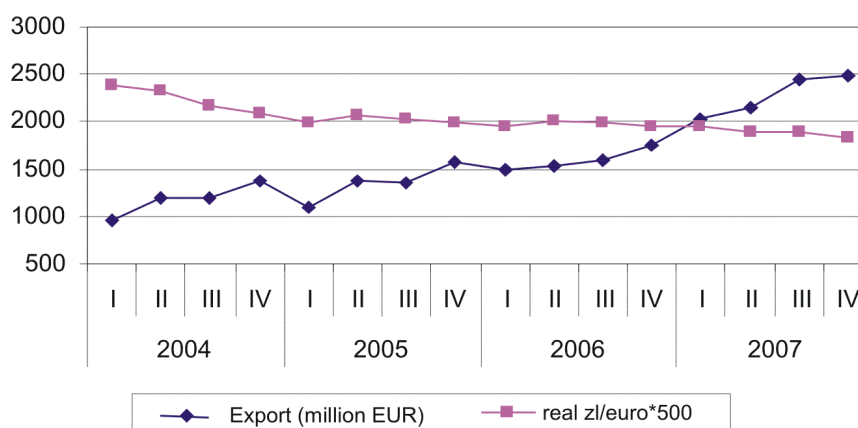
Source: author's calculations

Figure 3. **The exchange rate and the export of agricultural and food commodities to the EU**

by 24.5% in this time. The volume of export is also raised by 158%. The correlation coefficient between these two categories is at the level of 0.765. It means that there was strong relationship but opposite to this one suggested by the theory. It can be concluded that other factors, like increasing demand for the Polish food in the EU, cancelling of administrative barriers or rise of efficiency in Polish firms, influenced the changes in the volume of export to a larger extent.

The analysed period provides, different than in the previous relationship, connection between the quarterly real exchange rates of zloty in comparison to euro as well as the quarterly volumes of import of agricultural and food commodities from the European Union to Poland. This relationship was the same as this from the theory of macroeconomics, saying that appreciation of national currency cause increase in import. The strengthening of zloty in the years 2004-2007 was accompanied by a considerable increase in the import's volume. The correlation coefficient

for these two parameters was at the highest level of -0.679. In the case of delay of import's reaction by one quarter, it was -0.612; whereas by two quarters it was -0.542. It means that the volume of import of agricultural and food commodities with the EU reacted significantly in the first period as the result of new level of exchange rate of zloty; whereas slightly less significant reaction took place in the latter period.

The descriptive econometric model of import's volume can be used in order to describe quantitative relationship between the researched parameters. It consists of import functions and random term [Bartosiewicz 1990]. There are various methods of choice of analytical function's form. For the purposes of this study visual estimation of graph of empirical points' dispersion was used. It consists of making correlation graph simultaneously presenting values of variables. The shape of points' trail suggests a type of statistical function. Dispersion of empirical

$$y = 250051x^{-3.924}$$
$$R^2 = 0.5609$$
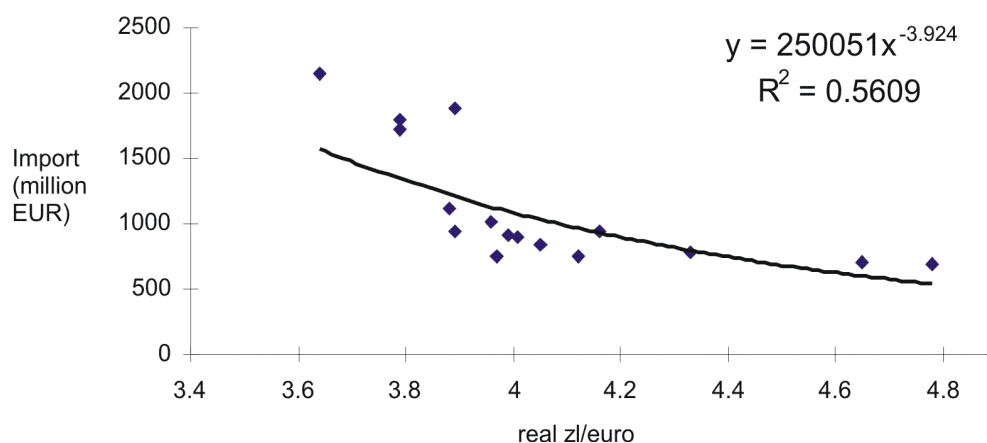
Source: author's calculations

Figure 4. **The exchange rate and the import of agricultural and food commodities from the EU**
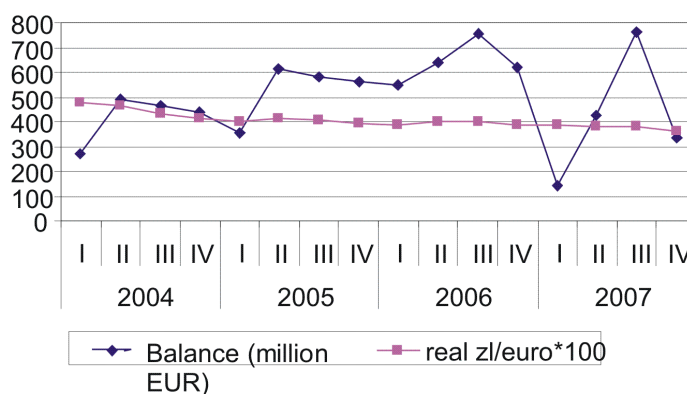
Source: author's calculations

Figure 5. **The exchange rate and the balance of foreign trade of agricultural and food
commodities with the EU**

point on the graph No 4 recommends that power function should be used to describe relationships between the import and the level of real exchange rate of zloty. The analysis of significance of determined function's parameters indicated that all parameters are statistically significant. It can be said that the import volumes were explained by the determined regression function in 56% because the determination coefficient $R^2 = 0.56$. As the result this function describes well relationship between the researched categories.

As it was presented in the theoretical part of the study, relationship between the exchange rate and foreign trade is mutual. The change in the exchange rate influences the balance of trade as well as the change in the balance of trade determines the exchange rate of national currency. It seems that the exchange rate should be more important for the balance of trade of agricultural and food commodities with the European Union, than the balance of this trade for

the exchange rate. It was connected with very small quarterly values of the balance of trade of agricultural and food commodities (the most often 500-600 million euro) in comparison to the whole flows occurring in the balance of payments, for example, flows connected with purchase of governmental securities.

However, the influence of the zloty's exchange rate on the balance of trade of agricultural and food commodities were also not significant (Figure 5). Strengthening of the exchange rate was not accompanied by decrease in this balance, which was positive in each quarter. It was proved by the correlation coefficients, only slightly different from the zero. All these issues allow concluding that satisfactory explanation of the analysed balance, which is a final result of two sides of trade, is impossible without the analysis of influence of other factors on the export and import of agricultural and food commodities.

Conclusions

There were positive values of balance of the Polish foreign trade of agricultural and food commodities in the analysed period from 2004 to 2007. Despite the fact that the Polish food industry was well developed, its role in the export and import was small (below 10%). The European Union was the most significant Polish partner in trade of agricultural and food commodities.

The role of the exchange rate of zloty in comparison to euro was diversified for parameters of foreign trade with the European Union. The most significant was the influence of the real exchange rate of zloty on import. Strengthening of zloty in the period 2004-2007 was accompanied by a significant increase in import. The use of power function allows concluding that the quarterly volumes of import were explained by the average quarterly exchange rates of zloty in 56% whereas zloty's appreciation had small influence on the level of export. Other factors stimulating the Polish market, like increasing demand for the Polish food in the EU, cancelling of administrative barriers or rise of efficiency in Polish firms were the most important factors in this field.

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Strategies and Effectiveness of Working Capital Management in Food Industry Enterprises[1]

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Abstract

The research determines the strategies and effectiveness in working capital management using an EVA (Economic Value Added) indicator on the example of food industry companies. The period of research covers the years of 2003-2007. A method of identifying the working capital strategy according to the risk-return concept is presented. Economic Value Added (EVA) of the companies is estimated in order to determine dependencies between the working capital management strategy and the increase of the value for their owners. The superiority of effective working capital strategies over the ineffective ones according to the EVA criterion has been determined. Conservative working capital strategies were characterised by relatively higher effectiveness in comparison with the aggressive ones. A statistically significant dependence between the Economic Value Added and the level of working capital in the company has not been noted.
Key words: working capital strategies, company effectiveness, economic value added.

Introduction

Working capital management is a crucial task of financial director in the company. Working capital management is defined as the complex of activities oriented, first of all, on the maintenance of current financial liquidity, but also having impact on the increase or decrease of company's profitability. The working capital can be considered in the gross or net aspect (Wędzki D., 2002). By net working capital the difference between current assets and current liabilities is meant (short-term liabilities) (Pluta W., 1999). Gross working capital is the value of current assets together with the funding sources (Wędzki D., 2002). A following relation comes between Net Working Capital (NWC) and Gross Working Capital (GWC):

$$GWC = STL + NWC,$$

where:
STL – short-term liabilities and accruals.

$$If\ NWC = CA - STL,$$

where:
CA – current assets, then

$$CA = STL + NWC, that is$$
GWC = CA.

Forming of working capital in a company is connected with an execution of an appropriate management strategy for this capital, that is, a conservative, moderate and aggressive strategy (Pluta W., 1999). The aim of the conservative strategy is to maximise financial liquidity, whereas the aggressive one is intended to maximise the economic income, and the moderate strategy is a medium variant between the conservative strategy and the aggressive one. A proposed division of working capital strategies is a result of the risk-return concept. In the risk-return aspect an overall financial liquidity strategy is a result of the need to reconcile two opposing objectives, which the company has to cope with: first, maximisation of value for the owners, which requires a sufficient level and structure of the working capital, and second, minimisation of risk of illiquidity, which can be caused by an insufficient level and structure of the working capital (Wędzki D., 2002). It should be mentioned that peer industry diversity exists in the scope of dependencies between the type of working capital management strategy and the effectiveness of company's activity (Wasilewski M., 2006; Wasilewski M., Chmielewska M., 2006; Wasilewski M., 2007).

A gross working capital category[2] is a combination of assets and their funding sources, thus

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[1] The paper has been prepared in the course of own analyses of SGGW – project No. 504-10-08110015.

[2] It can be theoretically proved that in the field of management the use of term gross working capital is more correct than net working capital. In practice, however, there is no significant difference between them (Wędzki D., 2002).

the management of this capital is not identical to the management of only current assets or only short-term liabilities (Wędzki D., 2002). Gross working capital strategy can be identified with financial liquidity strategy, which combines the strategy of current assets with the strategy of financing these assets (Kowalik M., 2008). Separating partial strategies from the overall working capital strategy is done to emphasise an investment ground within the company, which is related to forming and maintaining a sufficient level and structure of current assets and a financial ground, reflecting the structure of financing these assets. It should be taken into account that in economic practice, in the short term, separating the investment and financial decisions is difficult and can have somewhat an artificial character. This division is quite justified, if managers are going to make a detailed analysis of factors having impact on forming the overall financial liquidity strategy and to determine the extent and the character of relations between these factors. It enables also the examination of the impact of short-term decisions on increase of the value of the company in long-term period. In a manager's opinion, a more important issue in a company's financial liquidity management process is the determination of proper relations between investment and financial ground. This ensures continuity of the production with a sufficient level of liquidity. One of the determinants of the character of shaping these relations is net working capital level. It is a measure of financial liquidity level, as it corresponds to the amount of the assets securing the payment of required liabilities (Wędzki D., 2002). Net working capital strategy is a short-term asset-capital strategy, a part of financial liquidity strategy, allowing demonstration of dependencies between the decisions of investment character and the ones of financial nature in a synthetic manner. In the paper, this term corresponds to the net working capital strategy. For simplicity it is assumed that net working capital is referred below as working capital.

An issue with significant influence on the results of working capital strategy determination process is a selection of proper ratios and proper benchmark for measurement of this strategy. It is reasonable to apply such methods of determination, which allow unambiguous definition of working capital strategy. When determining this strategy, ratios of contribution of current assets and current liabilities to overall assets are used (Czapiewski L., Kubiak J., 2008). We should take into account that some authors apply the same ratios to determine gross working capital strategies (Kowalik M., 2008). It proves the lack of consent in the issue of defining category of working capital and its role in financial liquidity management process in the company. This way of determining

the working capital strategy does not point out a specific measure for this strategy. An alternative for this method could be evaluation of one synthetic ratio, which would determine the working capital strategy, taking into account net working capital value (Czapiewski L., Kubiak J., 2008). In literature a Net Working Capital contribution (NWC) in overall assets (OA) ratio is proposed (NWC/OA). It should be emphasised that in case the net working capital is a negative value, this ratio value will also be negative. Applying only one ratio for determining net working capital strategy can cause some difficulties. This method of strategies' definition allows to determine two types of them – aggressive and conservative ones. In opinion of some authors, introducing this method of identification of particular strategies the parameters, defining a moderate strategy, should result in giving consent to quite view-dependent strategy classification system, because it would be easy to undermine accepted divisions of ratio values, separating each strategy: aggressive, moderate and conservative one (Czapiewski L., Kubiak J., 2008). One of possible solutions for this issue is applying the quartile method to classify working capital strategies (Wasilewski M., 2006). Quartiles divide the set into four numerically equal parts (Wasilewska E., 2008).

Aim and methods of research

The aim of the research is defining of working capital strategies and effectiveness of their management in companies of food industry applying an EVA (Economic Value Added) method. Working capital strategies have been analysed in risk-return concept. Food industry stock companies, quoted on Warsaw Stock Exchange have been selected for the research. Period of the research includes years between 2003 and 2007. Due to the limitations in access to data in 2003 the number of companies under research comes to 19, in 2004 and 2006 – 23 respectively, and in 2005 and 2007 – 24. Data for calculation of respective ratios come from financial reports of the examined companies.

In the first stage of the research working capital management strategies have been determined based on ratio of contribution of this capital to overall company assets. The choice of this ratio as determinant of working capital management strategy seems to be reasonable, as its structure in the best and simplest way reflects capital-assets' relations, important in the light of the category of financial liquidity. Higher values of this ratio correspond to conservative strategies, whereas the aggressive ones are reflected in lower values. For grouping of the companies according to working capital management strategy criterion quartile method has been applied. The first group of the companies (25%) with the lowest ratio

value, being the relation of working capital to the total assets, is classified as aggressive strategy, 25% with the highest ratio - as the conservative one, and 50% of the companies, characterised by an average ratio value – as moderate strategy. Applying quartile method does not fully allow division of conservative-aggressive and aggressive-conservative strategies within the moderate strategies that is required by risk-return concept. It has been assumed that both modifications of the strategy have similar impact on creating of company's value, thus their distinction may be not very important. In the paper, however, we propose dividing moderate strategies into a moderately conservative one and moderately aggressive one.

In the subsequent stage of the research the estimation of EVA category is conducted. This category is used for measuring an increase of the company value in the examined period. EVA method allows to determine actual effectiveness of the engaged capital, since, decreasing the operating profit (after taxation) by cost of equity and loan capital, we determine, whether the result of leading the company covers the cost of engaged capital, or is higher and increases the owner's wealth by the exceeding part of the profit (Wielicki W., 2008). Building a linear econometric model, where an EVA value is a dependent variable, and an explanatory variable, the working capital value explains the dependency (or its lack) of net working capital management strategy and the increase in company value.

Applying EVA method to estimate the working capital strategy effectiveness

Table 1 shows the classification of working capital level ratios (contribution of this capital to current assets) in groups of companies, applying aggressive, conservative or moderate strategy. The companies with ratio values lower than or equal to the first quartile pertain to aggressive strategy. Conservative strategies cover companies with the ratio higher than the third quartile. An exception is the companies with the ratio, being a quartile, the value of which is convergent with the ratio value preceding or subsequent in a specific ordered series. In this case the quartile is classified to a group of companies, where the ratio of the same value appeared. Quartile method gives also the basis for distinction of companies with moderate strategies, which are 50% of the examined population, into two groups. Among these companies we can isolate units with moderately aggressive strategies, in which the working capital level index value ranges below the median but over the lower quartile and moderately conservative ones, for which the value of this index is over the median, but below the upper quartile[3].

In case of aggressive strategies working capital level ratio took negative values in the examined period. The lowest ratio has been stated in 2003 (-0,42). It gives evidence of prevalence of current liabilities over current assets, which causes a serious danger of illiquidity for the companies. One of reasons for maintaining negative net working capital could be a management's attempt to decrease the cost of financing of current assets, and, as a consequence, to increase the value for owners. In moderately aggressive strategies the increase of lower range of working capital rate was noticed. In 2003 the minimum value of this rate came to -0.05; whereas in 2007 it was 0.01. It suggests the overall tendency of decrease the level of aggression of this strategy in the whole industry. It means that some strategies treated in 2003-2006 as moderately aggressive, in

Table 1

Determination of working capital management strategy

Strategy type	Division of index of working capital contribution to the current assets in years:				
	2003	2004	2005	2006	2007
Aggressive	(-0.42) - (-0.08)	(-0.21) - (-0.04)	(-0.32) - (0.02)	(-0.15) - (-0.03)	(-0.33) - (-0.01)
Moderately aggressive	(-0.05) – 0.07	(-0.03) – 0.08	(-0.01) – 0.12	(-0.02) – 0.12	0.01 – 0.10
Moderately conservative	0.10-0.24	0.09-0.21	0.13-0.19	0.15-0.26	0.12-0.17
Conservative	0.27-0.36	0.22-0.42	0.20-0.63	0.31-0.55	0.21-0.66

Source: authors' research

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[3] According to the assumption of authors in periods, when impair number of companies is examined, the median value, being the second quartile has been classified to group of companies with lower working capital level ratio related to the median.

2007 unambiguously were classified to the group of aggressive strategies. In the mentioned group, the ratio gained a maximum value (0.12) in years 2005 and 2006, and after that its upper range lowered to the level of 0.10 in 2007. In the group of companies with moderately conservative strategies the net working capital ratio came to its minimum value in 2004 (0.09) and its maximum value in 2006 (0.26). The tendency to decrease the upper range of the index in years 2005 and 2007 has been stated, which indicates the rising of conservatism in working capital strategy. Conservative strategies are characterised by the highest working capital level ratio value. The priority for the short-term financial management in companies with conservative strategies is high level of financial liquidity. Increase in financial liquidity is connected with covering additional costs, resulting from higher rate of return required from long term capital invested in the company.

In order to examine dependencies of working capital management strategy and the value for shareholders a measurement of increase in value of companies in each year of the analysed period has been performed. For this purpose category of Economic Value Added (EVA) has been applied, which is operating profit after taxation remaining in the company, when costs of capital have been covered (Wędzki D., 2002). This meter is used for various purposes: for quantification of strategy scenarios, for evaluation of investment options, in the process of planning the activities of the company, budgeting, estimation of performance, and as a basic ratio in motivation systems (Szablewski A., 2005). EVA can be expressed with the following formula:

$$EVA = NOPAT - WACC*IC,$$

where:
NOPAT – net operating profit after tax,
WACC – weighted average cost of capital,
IC – invested capital.

Cost of the capital is defined as a rate of return expected by the investor from the capital engaged with certain level of risk. The cost of capital financing the net current working assets is determined by weighted average cost of capital (Duliniec A., 2007). It is an average of equity and loan capital cost weighted with its share in the overall invested capital:

$$WACC = \omega_E k_E + \omega_D k_D(1\text{-}T)$$

where:
ω_E – contribution of equity capital to the invested capital,
k_E – cost of the equity capital,
ω_D – contribution of the loan capital to the invested capital,
k_D – cost of the loan capital,
T – income tax rate.

The research estimates the weighted average cost of capital (WACC) in each year of the analysed period as the weighted average of equity capital cost and liabilities, based on the data presented in Table 2.

The evaluation of equity capital cost is a difficult task, therefore it is possible only to estimate this cost based on various available methods (Duliniec A., 2007). It has been assumed that the equity capital cost is equal to free of risk return rate from 52-weeks treasury bonds of the Ministry of Finance (Wędzki D., 2002). Cost of long-term and short-term loan capital, which are the components of the invested capital are set on the basis of data available in official statistics NBP. A gradual fall of WACC can be noticed in food industry companies, as a result of lowering cost of equity capital as well as loan capital during 2003-2006. On the contrary in 2007 the cost of equity capital and loan capital increased relating to 2006. The value of the invested capital (IC) has been calculated, based on publicly available financial reports, as a sum of equity capital and loan capital bearing interest that is, generating cost. On the basis of this date the value EVA has been estimated for joint stock food industry companies in 2003-2007.

Table 3 presents a division of companies with positive and negative EVA, based on used working capital strategy type. It shows in percent a contribution of companies with particular strategies of working

Table 2

Weighted average cost of the capital (WACC) (%)

Data item	Years				
	2003	2004	2005	2006	2007
52-weeks treasury bonds	5.36	7.15	4.89	4.20	4.71
Short-term credits	7.42	7.52	6.90	5.67	5.87
Long-term credits	7.79	8.13	7.32	5.81	6.15

Source: authors' research based on the data of the National Bank of Poland (NBP)

capital to the overall number of analysed companies each year.

If EVA > 0 then the value for shareholders is created, so the working capital strategy is effective. If EVA < 0 then the creation of value for shareholders did not occur, hence working capital strategy is ineffective. In the studied period companies with positive value of EVA meter prevailed. The managers of the examined companies more frequently selected aggressive and moderately aggressive strategies (in total 52% of the overall number of the companies). Relatively the highest number of companies with positive EVA value was in 2003 and 2006 – 68% and 65% respectively, whereas the lowest number existed in 2004 (57%). The lowest contribution of ineffective strategies has been stated in 2003 (32%), when in 2004 the contribution of companies with negative EVA ratio increased to 43%, and then gradually decreased to 38% in 2007. There were less positive values of these ratios (in total 30%) in case of moderately aggressive and aggressive strategies. More positive EVA ratios appeared in case of moderately conservative and conservative strategies (in total 32%). It points out a relatively higher effectiveness of more conservative strategies that aim to increase financial liquidity at the cost of the value for owner.

The ineffective strategies dominated in case of aggressive strategies in the analysed period, with the exception for the years of 2006-2007. It gives the evidence that taking higher risk related to the financial liquidity by the management in the years of 2003-2005 did not sufficiently reflect increase of the EVA meter, illustrating the increase in the value for owners. Increase in contribution of positive EVA ratio in the group with aggressive strategies is connected on the one hand with decrease in weighted average cost of capital for companies from examined industry, and, on the other hand, it can be a result of maximization of benefits for owners in the form of higher operating earning. The moderately aggressive strategies are

characterised by predominance of effective strategies, which is proved by the increase of the value of the company, the lower the aggressiveness of the strategy is. Only in 2007 contribution of ineffective strategies was equal to the contribution of the effective ones, and it came to 13%. In case of moderately conservative strategies different proportions have been stated between effective and ineffective strategies: in 2003 and 2005 effective strategies prevailed, in 2004 there were more ineffective strategies, whereas in the years of 2006-2007 contribution of ineffective strategies came equal to the contribution of the effective strategies. It reflected the average effectiveness of moderate strategies. The highest prevalence of effective strategies (18%) over the ineffective ones (6%) in the whole analysed period has been noted in the category of conservative strategies. This situation seems to be opposite to the assumptions of risk-return concept, and its cause requires more detailed analysis. Among the aggressive strategies for working capital, in respect of higher risk, the expected return rate should be higher. This group of companies is a frequent subject to diversification related to their functional effectiveness. It does not mean that no companies in this group have benefits in title of more aggressive financing of their activity. Motives for applying the aggressive financing strategy can be relatively different, from the need to saving the company from bankruptcy to performing even higher (tempo) of development. One of the methods helping resolve the question is analysis of correlations between working capital strategy and EVA category.

Working capital strategy and EVA value

The analysis of correlations is a useful tool that allows determining linear co-dependency between the examined variables. Dependency of variable X and Y can be written in the form (Zeliaś A., Pawełek B., Wanat S., 2002):

Table 3

EVA index in respect of working capital strategies (%)

| Strategy | Years | | | | | | | | | | Overall | |
| | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | | |
	EVA<0	EVA>0	EVA<0	EVA>0	EVA<0	EVA>0	EVA<0	EVA>0	EVA<0	EVA>0	EVA<0	EVA>0
Aggressive	16	11	17	9	17	8	4	22	8	17	12	13
Moderately aggressive	11	16	9	22	8	17	9	17	13	13	10	17
Moderately conservative	0	21	13	9	8	17	13	13	13	13	10	14
Conservative	5	21	4	17	8	17	9	13	4	21	6	18
Overall	32	68	43	57	42	58	35	65	38	63	38	62

Source: authors' research

$$\mathrm{Y} = f(X, u)$$

where:

Y – dependent variable,

X – explanatory variable,

u – summarised influence of other variables (unidentified).

This dependency is random, that is, to the impact on dependent value Y many unidentified variables are added, beyond the X variable itself. This summarised impact of other variables has been marked in the equations with u. The values of the u variable are not directly observed.

To examine the correlative dependency between working capital strategy and value for owners a linear correlation factor has been applied, named Pearson cofactor (Wasilewska E., 2008). A formula for calculating the linear correlation r Pearson cofactor is presented below:

$$r(X,Y) = r(Y,X) = \frac{\mathrm{cov}(X,Y)}{S_x S_y} = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2 (y_i - \bar{y})^2}}$$

where:

cov (X,Y) – covariance of attributes X and Y, which is a measure of total variance of two attributes,

S_x – Standard deviation of X,

S_y – Standard deviation of Y,

$\overline{x}, \overline{y}$ – arithmetic averages of variables, X and Y respectively,

n – number of observations.

Linear correlation cofactor is a symmetric measure and takes values from range < - 1, 1 >, which inform us of the strength and direction of linear correlation between variables (Witkowska D., 2006).

Value | r | can be in the following ranges:

0 – 0.2 – very weak linear relation,

0.2 – 0.4 – weak linear relation,

0.4 – 0.6 – average linear relation,

0.6 – 0.8 – strong linear relation.

r = 1 – correlative dependency comes into functional dependency.

Value $r_{xy} > 0$ informs us of a positive correlation, that is, with the increase of the value of one variable the conditional average of the other also increases. For $r_{xy} < 0$ correlation is negative, that is, the increase of the value of one variable is accompanied with the fall of conditional average of the other one. Square of linear correlation cofactor r^2_{xy} is a linear determination cofactor. This cofactor informs us, which part of variance of the dependent variable is explained by the variance of the independent variable (Witkowska D., 2006).

The study examines, whether correlation dependency appears between working capital strategy, which is expressed with working capital level ratio (NWC/OA), and the value for sharers – expressed with return rate based on EVA, that is, EVA/IC. The following dependencies have been obtained:

r (X;Y) = -0.1169; R = 0.0137.

The obtained result indicated that a weak negative correlative dependency exists. If an average contribution of the working capital in the overall current assets (NWC/OA) increase, then the value for owners, expressed by the relation of economic value added to the invested capital (EVA/IC) slightly falls. The value of linear determination cofactor informs that only 1.37% variance of the value for owners is explained with the variance of working capital strategy.

Formally the existence of weak correlation between return rate, based on EVA (EVA/IC) and the ratio of contribution of working capital in the overall property (NWC/OA) gives the evidence of irrelevant influence of the working capital strategy on the increase of the value for owner. Yet the results of examining the correlative dependency are highly depending on selection of indices as dependent and explanatory variables. Using other, more detailed and more precise measures for working capital strategies as well as for the increase of the value for owners, and considering other explanatory variables can lead to uncover relevant relations between the way of managing the current assets and sources financing them and the value of the company. It requires carrying out more detailed analysis, with the aim to find in the field financial liquidity management the variables relevant in the respect of shaping the value of the company for owners.

Conclusions

The research defines the strategies and effectiveness of working capital management in food industry companies using an EVA method. Methods for determining working capital strategies have been presented and relations between applied strategy and the value for owners in the company have been analysed in the reserach. Based on performed examinations the following conclusions have been formulated:

1. Ratio of contribution of working capital to overall current assets is a tool, allowing to unambiguously classify working capital strategies. Higher working capital level ratio value is related to more conservative strategies, intended for maximisation of financial liquidity, whereas lower ratio values – to more aggressive strategies, intended for maximisation of value for owners. Applying quartile method allows division of working capital strategies in the examined companies, determined based on working capital level ratio, into conservative, aggressive and moderate. In addition, it allows us to isolate within the moderate strategies, moderately aggressive ones and moderately conservative ones.

2. The analysis of effectiveness of applied working capital strategy according to the economic value added (EVA) criterion has pointed out the prevalence of effective strategies in the examined period. Most of these strategies have been stated in the group of conservative and moderately conservative strategies, and in these there were more companies applying aggressive and moderately aggressive strategies. It demonstrates the relatively higher effectiveness of more conservative strategies. On the one hand it can be supposed that accepting higher risk in financial liquidity by the management of the companies not always resulted in the increase of the benefits for owners in the form of higher economic income. On the other hand, companies with higher working capital level ratio more frequently gained positive financial and economic results, so higher amount of working capital in the company can be a sign of good financial condition and greater possibility to gain more benefits for owners. It should be mentioned that the above conclusion, which is opposite to the assumption of risk-return concept, is formulated on the basis of rather general analysis of span of effective strategies in the whole examined set. To verify this more detailed analysis is required, which would consider also other criteria for determining working capital strategies and for assessment of their effectiveness.

3. Analysing correlative dependency between EVA/IC ratio and NWC/OA, using Pearson's cofactor proved lack of relevant relations between the value for owner and the level of working capital. Taking into account small recognition of studied issue among the scientists and professionals, there is a lack of reliable variables, expressing relation between the value and the financial liquidity of

the company. Further studies are needed with the aim of building econometric model, and explaining shaping of working capital strategies in the light of benefit for owners.

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Pre-accession and Sector Operational Programme in Polish Agriculture

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Abstract

Polish food economy has become a beneficent of integration with the EU. The adaptation processes in Polish agriculture started in 2002 with the use of support means from the European Union. That process was characterised by big stability, concerning accepted forms activities and demanded directions of changes in producing structure. The commonwealth programmes (SAPARD, SOP, and Rural Areas Development Plan) related to the modernisation and restructuring of Polish agriculture and its sustainable development were introduced during the analysed period of three stages. Later all the activities from SAPARD were continued in sector programmes with different forms of adaptation to the new needs, i.e., possibility of co-financing of some projects from different branches. Also the programme in range of RADP "Adaptation of Farms to the EU Standards" which was financed in EUR 630 million[*] from public funds was succeeded involving approximately 76 000 farms.

Key words: Common Agricultural Policy, sector programmes, rural areas, Polish agriculture.

Introduction

With the accession to the EU in 2004, Poland expected to obtain considerable benefits for rural areas and food economy. An argument speaking for accession was, among others, the stability of agricultural policy enabling farmers to make long-term plans, and achieve greater predictability as far as effects of taken production and investment decisions are concerned. Hopes were connected with a possibility of carrying out deep restructuring and modernisation of agriculture and food industry, supporting improvement in competitiveness of production in food economy, improvement of earnings for rural inhabitants, extension of technical infrastructure, protection of natural environment or multifunctional development of rural areas. Expectations and the scale of challenges were therefore unusually broad and expanded, since rural areas, defined as a land situated outside the town space, covered about 93% of the Poland's territory and were populated by almost 15 million inhabitants (i.e., 38% of total population) living in 4.1 million households in 1589 rural and 582 municipal-rural districts in 42 thousand villages and about 40 thousand smaller population concentrations in the form of farmsteads, hamlets, settlements, etc. The complexity of problems generated therefore remarkable challenges when searching for manners, methods and instruments of influencing the process of transformation modelling and implementation of economic development in rural areas.

The accession of Poland to the EU structure accelerated the processes of economic activity polarisation among inhabitants of rural areas. Pre-accession funds, including SAPARD and the actions of Sectoral Operational Programme "Agriculture …", supported by the Common Agricultural Policy instruments and Rural Development Plan programme, and addressed directly to farmers accelerated the formation of commercial farms and the creation of a competitive sector of national economy. Similar effect was brought by the actions, the recipient of which was agricultural and food industry. Its expression has been even an improvement in the balance of foreign trade in food from a highly negative one throughout the whole period of the 1990s to a positive one starting with 2003 (in 2006, this surplus was EUR 2.1 billion).

Investments implemented in the pre-accession period as well as in the period of full membership contributed to modernisation, improvement of competitiveness and adaptation to sanitary and veterinary standards in almost 2.5 thousand food industry plants. Investments of the production and modernisation nature or those serving a purpose of income diversification were carried out by over 140 thousand farms. About 1.5 million farmers benefit from direct subsidies every year. The total value of financial transfers for agriculture, food economy and rural areas exceeded PLN 47 billion from May 2007 to the end of September 2007. The majority of these

transfers (almost PLN 40 billion) are funds transferred within the CAP (Common Agricultural Policy). Their value exceeds five times the value of payments for rural areas flowing by hand of structural funds (PLN 8 billion). The transfers from the agricultural fund themselves, i.e. from the EAGGF, exceeded PLN 44 billion, whereas the remaining SF transfers directed to rural areas (except for SOP-Transport) were a little over PLN 3 billion. The supply of financial resources as well as investments contribute to the improvement of food sector competitiveness and catching up with civilisation backwardness in rural areas, although the scale of needs is at present considerably larger than financial possibilities.

Materials and research methods

In 2002-2003, the Special Accession Programme for Agriculture and Rural Development (SAPARD) was implemented in Poland. Positive experiences flowing from this programme were a factor encouraging for its continuation within the framework of Sector Operational Programme – Agriculture (2004-2006). After certain programme modifications, actions have been taken that have been reflected in another Rural Development Programme (2007-2013). Starting with SAPARD, through SOP and RDP, these programmes belong to most functional instruments of financial assistance for agriculture, the main objective of which was to accept legal achievements of the European Union [acquis communautaire], adapt farms to the cross-compliance, and what is more to adjust the agricultural and food sector to requirements of the single European market, improve competitiveness of the agricultural sector and support multifunctional development of rural areas.

SAPARD and Sector Operational Programme – Agriculture belong to the actions completed in terms of application acceptance and verification, with SAPARD being fully completed in 2006 according the "n + 2" rule, which should be interpreted as the necessity for settlement of financial resources within two years after the programme completion. The deadline for completion of settlements for Sectoral Operational Programme – Agriculture is expiring in December 2008, while actions within the new RDP have been just started.

The paper discusses the legal foundations of SAPARD, SOP and RDP operational programmes as well as the results obtained in relation to the original programmes.

Descriptive and analytic methods were used in the research work that allowed learning of the adaptation process on the basis of three stages of the implementation of assistance programmes in agriculture and rural areas. Tabular data were in turn

based on the Management Information System of the Agency for Restructuring and Modernisation of Agriculture.

Results and discussion
SAPARD

Special Accession Programme for Agriculture and Rural Development (SAPARD) came into being as an assistance instrument for the countries applying for a membership in the European Union. Assumedly, it was to serve a purpose of structural transformation processes in rural areas as well as those of adaptation to the Community law. Implementation of the programme was to prepare institutions and beneficiaries to use the Common Agricultural Policy instruments after accession to the EU. The European Commission approved the SAPARD operational programme prepared by the Ministry of Agriculture and Rural Development on 18 October 2000. Next actions included signing a multiannual financial agreement and annual financial contracts. The first annual financial contract was signed on 29 March 2001.

The programme's budget, amounting to EUR 1084 million (PLN 4795.3 million), was composed of the European Union's funds in the amount of EUR 708.2 million and EUR 235.8 million as national funding as well as of EUR 140 million moved from the budget of Rural Development Plan (RDP) on approval of the European Commission. According to the SAPARD operational programme, the Polish Government decided to implement the following actions within SAPARAD:

Action 1. Improvement of farm and fish produce processing and marketing.
Action 2. Investments in farms.
Action 3. Development and improvement of infrastructure in rural areas.
Action 4. Economic diversification in rural areas.
Action 6. Vocational training.
Action 7. Technical assistance.

Poland renounced Action 5 "Agri-environmental schemes and afforestation", which was next found in RDP. First four actions were the responsibility of the Agency for Restructuring and Modernisation of Agriculture; in turn, the Ministry of Agriculture and Rural Development was responsible for implementation of the "Vocational training" and "Technical assistance" actions.

In July 2002, the process of application acceptance started, which was completed in February 2003. Applications were submitted both by farmers, local governments and businessmen. These applications were rather elaborate and difficult to be completed due to the necessity of meeting specific criteria. The

implementation of assistance in the form of refund took place not before investment completion. Apart from farmers, a large interest in these applications was showed by local governments that strived for assistance in building communal (district) roads, municipal sewage treatment plants, or water supply systems.

The objective of Action 1 "Improvement of farm and fish produce processing and marketing" was to ensure food production and quality safety as well as to strengthen [consolidate] groups of farm producers and their unions. Agricultural and food processing plants were assigned to adapt [adjust] to sanitary-veterinary requirements through modernisation of buildings and their equipment, construction of processing lines, improvement of management and control systems (implementation of HACCP), or training of employees. The priority was given to applications which aimed at improvement of environmental protection condition and rationalisation [streamlining] of water and energy management, with subsidies for innovation investments allowing them to function at the single European market.

The objective of Action 2 "Investments in farms" was to improve the quality of farm production through better technical equipment in farms and their restructuring. A farmer applying for assistance within this action was obliged to prepare and present for evaluation a business plan that contained:
1) description of farm initial situation;
2) intended investments;
3) target state;
4) financial analysis.

The objective of Action 3 "Development and improvement of infrastructure in rural areas" was to improve competitiveness of rural areas as a place of residence and running business activity. The attention was paid to a low level of rural infrastructure, which discouraged potential investors from taking up business activity. Within this action, investments were supported which addressed the improvement of water availability and quality, management of municipal sewage, waste utilisation and construction of roads. Furthermore, investments in the area of improvement of energy supply and development of telecommunication technology were also subsidised.

The objective of Action 4 "Economic diversification in rural areas" was to encourage to developing non-agricultural business activity, including creation of conditions for development of tourism in rural areas. Also subsidies were disbursed to undertakings aiming at the expansion of farm activity with small services, processing, craft, alternative agriculture and preservation of traditional professions.

For four actions vested for implementation to the Agency for Restructuring and Modernisation

of Agriculture, over 31 thousand applications were submitted, with 23.2 thousand applications being implemented amounting to 74.7%. When analysing the number of applications according to particular actions covered by the SAPARD programme, most applications were implemented within Action 2 "Investments in farms", namely 12.9 thousand (55.7%), followed by Action 3 "Rural infrastructure development and improvement", i.e., 4.6 thousand (20.0%), and Action 4 "Economic diversification in rural areas", i.e., 4.3 thousand (18.6%). Fewest applications were implemented within Action 1 "Farm produce processing and marketing improvement", i.e., 1.3 thousand (5.7%).

These proportions appear differently when we look at the analysis from the point of view of accomplished financial assistance funding. Most assistance funds were spent within Action 3 "Rural infrastructure development and improvement", namely at the level of PLN 2 014.5 million (45.1%), and Action 1 "Improvement of farm and fish produce processing and marketing", i.e., PLN 1 525.0 million (34.1%). For Action 2 "Investments in farms", PLN 588.5 million (13.2%) were spent, whereas PLN 342.3 million (7.6%) for Action 4 "Economic diversification in rural areas". In total, the financial support within SAPARD amounted to PLN 4.5 billion, i.e., annually PLN 2.2 billion. The detailed listing for the SAPARD programme implementations is presented in Table 1.

As it results from Table 1, actions were divided into schemes (13 schemes), while the latter into sub-schemes (6 sub-schemes). This was to enable beneficiaries to reach exactly the programmes that were of interest for them while having in mind the fact that they were the first actions implemented in Poland basing on the procedures applied in the European Union.

The differences showed between the number of applications and the level of accomplished financial assistance resulted from the fact that three groups of beneficiaries participated in these actions, namely farmers, local government units and businessmen [entrepreneurs] from agricultural and food processing plants. Action 1 "Improvement of farm and fish produce processing and marketing" was directed first of all to businessmen [entrepreneurs], therefore an average amount of PLN 1 141.5 thousand fell onto one implemented application. This was the largest amount among all actions. Action 2 "Investments in farms" was chiefly directed to farmers, therefore the amount of assistance dropped to PLN 45.5 thousand. For the support within Action 3 "Rural infrastructure development and improvement" applied in particular commune and district local government units, with the second largest level of financial support observed amounting to PLN 434.4 thousand. And finally

Table 1

Implementation of SAPARD in the period from 2002 to 2006

Item			Number of submitted applications	Number of implemented applications	Percentage	Amount of accomplished payments	Percentage (in relation to total)
1.	**Improvement of farm and fish produce processing and marketing**		**1 778**	**1336**	**75.1**	**1 525.0**	**34.10**
	1.1.	Support for restructuring and improvement of animal-origin products processing and marketing, including:	1 429	1099	76.9	1 281.8	28.70
		a) dairy sector	385	327	84.9	378.7	8.50
		b) meat sector	929	689	74.2	781.7	17.50
		c) fish sector	115	83	72.2	112.4	2.50
	1.2.	Support for restructuring and improvement of fruit and vegetable processing and marketing	349	237	67,9	243.2	5.40
2.	**Investment in farms**		**15 586**	**12 929**	**82.9**	**588.5**	**13.20**
	2.1.	Restructuring of milk production	1 178	1 017	86.3	77.6	1.70
	2.2.	Modernisation of farms specialising in production of slaughter animals, including:	1 049	834	79.5	64.2	1.40
		2.2.1. Production of beef cattle	68	40	58.8	1.9	0.04
		2.2.2. Restoration of sheep production	44	26	59.1	1.1	0.02
		2.2.3. Modernisation of pig or poultry production	937	768	81.9	61.2	1.40
	2.3.	Extension of farm production diversity	13 359	11 078	80.7	446.7	10.00
3.	**Rural infrastructure development and improvement**		**6 230**	**4 637**	**74.4**	**2 014.5**	**45.10**
	3.1.	Water supply for farms, with water treatment	1 282	1 014	79.0	340.8	7.60
	3.2.	Municipal sewage collection and treatment	1 869	1 400	74.9	964.7	21.60
	3.3.	Solid waste management	45	27	67.5	18.5	0.40
	3.4.	Communal and district roads in rural areas	2 989	2 157	72.1	683.5	15.30
	3.5.	Energy supply	45	39	86.7	6.9	0.10
4.	**Economic diversification in rural areas**		**7 504**	**4 325**	**57.6**	**342.3**	**7.60**
	4.1.	Creation of additional income sources in rural areas	2 393	1 491	62.3	45.7	1.00
	4.2.	Creation of jobs in rural areas	4 133	2 383	57.6	262.7	5.90
	4.3.	Public tourist infrastructure in rural areas	678	451	66.5	33.8	0.70
Total			31 098	23 227	74.7	4.470.3	100.00

Source: Management Information System, Agency for Restructuring and Modernisation of Agriculture

Action 4 "Economic diversification in rural areas" was directed to social and tourist organisations and farmers who wished to create new jobs. The amount of this support per one application was PLN 79.1 thousand.

Sector Operational Programme RDP and SOP-A

The Ministry of Agriculture and Rural Development, fulfilling the function of Managing Institution, obtained a delegation for preparation of – in conformity with the Act on national development plan of 2004 – executive regulations concerning the acceptance of sectoral operational programme for 2004-2006. On 1 September 2004, the Ordinance of the Minister with respect to the acceptance of sector operational programme "The Restructuring and Modernisation of the Food Sector and the Development of Rural Areas in 2004-2006" came into effect.

SOP was financed from the funds of the Guidance Section of the European Agricultural Guidance and Guarantee Fund as well as of those of the state and local government budgets and private funds. This programme was in part a continuation of the SAPARD pre-accession programme within which similar actions were implemented. Total support from the EU amounted to EUR 1192.7 million; whereas as combined with national support in the amount of EUR 591.1 million equalled to EUR 1784.0 million altogether. Taking into account the involvement of private funds of the beneficiaries, it was assessed that the total value of undertaking implemented within SOP could have amounted to EUR 2.7 million.

Such a huge scale of intervention is directly connected with the acceleration of economic development in rural areas. Therefore, the question that even through such a large financial support, easiness as well as commonness of using assistance programmes, actions of the agricultural programmes of the 1st mainstay of CAP as well as SOP – "Agriculture …" brought the largest effect on structural transformations in rural areas, is undisputable. In the "agricultural" programmes, an exceptional accuracy of defining real economic problems of food producers, environment and rural areas as well as accuracy of applying the instruments of CAP or actions of the structural policy of SOP –Agriculture … programme should be emphasised. However, an issue open to question is the very disposal of funds between respective actions, and whether the adopted distribution ensures their best utilisation from the point of view of economic effect maximisation. The EU funds play unusually important role in economic results of Polish farms. In the first years of membership, these funds constituted 20% of the final production of agriculture, about 25% of its commercial production and up to about 50% of gross value added. It means therefore that in the nominal approach they increase the income produced by a farm by almost a half; whereas in the real approach by 40%. Also accumulation capabilities of farms increase by the same value.

The analysis of selected Polish agriculture development measures and deliberations over the effect of selected RDP and SOP-Agriculture actions in 2004-2006 show positive changes. Undoubtedly, they have been caused to a considerable extent by a possibility of obtaining funds from the European Union. However, the EU funds do not have a common character, i.e., they do not refer to all subjects. This is because they are addressed to specific groups of beneficiaries. Depending on the type of actions specified in SOP-Agriculture and RDP for 2004-2006, these funds affect local development in a different way. Actions specified in SOP have a greater effect on taking place changes due to the fact that they are the funds serving first of all a purpose of structural transformations. The interest in them from the side of rural inhabitants may seem to be relatively small when taking into account the number of applications. However, one should take into consideration the fact that the pool of funds was drained relatively quick, thus next applications from the willing farmers were not accepted. One of the reasons for initially small dynamics of application collection could have been the fear of farmers for financing possibilities. It was because the formal requirements meant the necessity of having own funds as well as the compulsion of investment financing before obtaining the EU support.

In 2004-2006, before Rural Development Plan, two strategic objectives were set: improvement of farm competitiveness and sustainable development of rural areas. Basing on the programme's budget (EUR 3.392 billion), ten actions were implemented, among which "Structural pensions", "Support for semi-subsistence farms" and "Groups of agricultural producers" were to serve a purpose of improving economy competitiveness, while sustainable development of rural areas was achieved by means of such actions as: "Support for agricultural activity in less favoured areas (LFA)", "Afforestation of agricultural land" and "Adaptation of farms to the EU standards". On 31 December 2006, the time for submitting applications ended definitely. From October 2007 according to the data of the Ministry of Agriculture and Rural Development, 6.78 million applications were submitted within the whole programme in 2004-2006, with 6.6 million decisions granting support being issued and PLN 13.6 billion being paid, filling in the programme's budget in 96%.

Table 2

Distribution of total public funds (EU and national) between respective actions (in million EUR)

Action group	RDP		SOP-A		RDP + SOP-A	
	Planned funds	Participation	Planned funds	Participation	Planned funds	Participation
Supporting food economy	**972.5**	**27.1**	**1 489.6**	**83.3**	**2 462.1**	**45.8**
Modernisation of farms			586.6	32.8	586.6	10.9
Improvement of farm and forest produce processing and marketing			502.7	28.1	502.7	9.3
Facilitation of start for young farmers			173.3	9.7	173.2	3.2
Support for restructured semi-subsistence farms	329.1	9.2			329.1	6.1
Groups of agricultural producers	6.4	0.2			6.4	0.1
Land integration			21.3	1.2	21.3	0.4
Management of agricultural water resources			132.0	7.4	132.0	2.5
Adaptation of farms to the EU standards	637.0	17.7			637.0	11.8
Consulting services provided for farmers and forest owners			53.7	3.0	53.7	1.0
Vocational training for farmers and forestry employees			20.0	1.1	20.0	0.4
Supporting other economy sectors			**81.1**	**4.5**	**81.1**	**1.5**
Differentiation of economic activity			81.1	4.5	81.1	1.5
Supporting environmental protection	**303.6**	**8.5**	**13.9**	**0.8**	**317.5**	**5.9**
Agro-environmental programmes	218.9	6.1			218.9	4.1
Afforestation of agricultural and non-agricultural land	84.7	2.4			84.7	1.6
Regeneration of destroyed forests and preventive measures			13.9	0.8	13.9	0.3
Improving the quality of life	**0.0**	**0.0**	**154.6**	**8.7**	**154.6**	**2.9**
Rural renewal and development			112.5	6.3	112.5	2.1
Technical infrastructure in rural areas			42.1	2.4	42.1	0.8
Support for agricultural income	1 492.7	41.6	0.0	0.0	1 492.7	27.7
Support for agricultural activity in less favoured areas	957.8	26.7			957.8	17.8
Structural pensions	534.9	14.9			534.9	9.9
Other	**21.5**	**0.6**	**48.6**	**2.7**	**70.1**	**1.3**
Local action groups			30.4	1.7	30.4	0.6
Programme management	21.5	0.6	7.9	0.4	29.4	0.5
Technical assistance	802.1	22.3	0.0	0.0	802.1	14.9
Transitory actions	802.1	22.3	0.0	0.0	802.1	14.9
Supplementation of area payments	682.4	19.0			682.4	12.7
Projects accepted for implementation, exceeding the SAPARD budget	119.7	3.3			119.7	2.2
Total	**3 592.4**	**100.0**	**1 787.8**	**100.0**	**5 380.2**	**100.0**

Source: Management Information System, Agency for Restructuring and Modernisation of Agriculture

RDP actions, both in respect of submitted applications and achieved payments were greatly enjoyed by rural inhabitants. However, the character of actions varies very much (area payments versus investment actions), thus not all of them affect structural transformations in rural areas and agriculture to the same extent. In small farms, area payments or LFA ones can only affect the improvement of current income situation of their owners and family members. Funds obtained on this ground in small-area farms are not large, thus they cannot be a source of investment financing, whereas in large farms they frequently fulfilled a role of investment funds or were used as a working capital. The detailed listing of implementations within RDP and SOP-A programmes is presented in Table 2.

When evaluating RDP programme, one should emphasise, among others, that:

— "Structural pensions" were incentive to take farms after parents by young successors, accelerated generation replacement process (up to 84% of agricultural land fell into the hands of farmers under the age of 40 years). However, they did affect reduction of the number of farms. It results from small impact scale (only 53 thousand farms were handed over to successors) and handing them over primarily to successors who kept on working in the same production unit. Therefore, the implementation of this action did not have any effect on the improvement of agricultural structure (the average area of a farm handed over to a successor is 8.3 ha);

— "Support for semi-subsistence farms" through the purchase of most farm machinery and equipment led as a matter of fact to the improvement of technical equipment status but to speak about meeting the criterion of "economic viability" will be possible not earlier than in few years when the performed investments will in fact lead to an increase in the scale of own product sales and improvement of economic results;

— "Support for LGA" contributed as a matter of fact to preservation of agricultural activity on marginal soils, which is even showed by the growing number of applications for subsidies from farmers, but from the point of view of the effective use of available funds the objections are raised above all by "money distribution" in this form. Therefore, this action satisfied mainly a social and environmental objective;

— "Support for agro-environmental undertakings and improvement of animal welfare" became an incentive for more effective protection of natural environment and increase of permanent grassland participation in ecological farms. This is confirmed, among others, by dynamic growth in the number of ecological farms and in their area (it was almost three times larger than the national average in 2006). The area of implemented agro-environmental packages was almost 900 thousand ha, which is over 6.3% of the area declared by farmers for direct payments;

— "Afforestation of agricultural land" covered 43 thousand ha. Apart from a clear material profit for beneficiaries of this action, some chaos in agricultural land use was also introduced. It was because a requirement for the acceptance of application for implementation was to present a certificate that appropriation of agricultural parcel under afforestation is not at variance with the study of local preconditions and directions of spatial management (but not its management plan).

— "Adaptation of farms to the EU standards" led to the improvement of equipment status in 70 thousand farms in the necessary facilities (mainly for storage of natural fertilisers) and allowed adjustment of 5.6 thousand farms to public health standards.

The SOP – Agriculture … programme was introduced with the aim to implement two assumptions of the National Development Plan, namely "Improvement of agricultural and food economy competitiveness" and "Sustainable Development of Rural Areas". In the first half of 2007, the process of signing contracts submitted by beneficiaries was completed. In total, 45.8 thousand contracts for financing in the amount of PLN 5.5 billion were signed, whereas the Agency made 41 thousand payments for a total amount of PLN 3.5 billion, which is 63% of the available financial limit utilisation.

Conclusions

Food economy became a beneficiary of integration into the EU. Direct effect of this integration is the growth of local market and increase of food export. Positive balance in food foreign trade has increased four times from 2003, exceeding PLN 8.3 billion in 2006. In last three years, the sold production of food industry has grown at the annual rate of 7-9%. It is also the effect of improvement of its competitiveness. This process is being accomplished owing to production industrialisation and investment growth connected, among others, with the necessity of adapting processing plants to the EU standards. The marketability of agricultural production grows at the same time (6-8% per annum). The process of farm polarisation has accelerated. Direct consequence of integration was transitory growth of farm income caused by payments of production subsidies, and the change in the value of total production of agriculture

and production costs. The consequence of integration into the European food market is the equalisation process in the prices for agricultural raw products, food products and means of production, being however limited by the purchasing power of consumers. This is accompanied by a relative reduction of prices in relation to retail prices of other products and services. In future, the growing importance of the European food market in Polish economy will be accompanied by modernisation of industrial food production, improvement of the vertical and horizontal integration degree of the agricultural and food sector, structural transformations in agriculture, and multifunctional development of rural areas. The Polish food has a chance for permanent presence on the European market, although from the point of view of the whole Europe the economic potential of Poland in this respect will be small.

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Quality Cost Items in Labour Environment

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Abstract

The present research describes costs and their items for the quality of labour environment. The authors have presented their research on the results of inspections carried out by the State Labour Inspectorate, unsatisfactory labour conditions, an impact of unsafe human actions and work organisation on the quality of enterprise labour environment.

Key words: labour environment, quality, quality costs.

Introduction

A civilised society pays serious attention to the labour environment and its improvement. The problem regarding the quality of labour environment is especially topical for entrepreneurs whose activities are related to high dangerousness in the labour environment as well as pose high hazards to employees' health.

Costs for the quality of labour environment and their structure could be different in each enterprise. They depend on the size of an enterprise, risk magnitude and the number of employees subject to risk factors, the state of premises and equipment, and many other factors.

It is not correct to consider that expenses related to the labour environment are only expenses caused in case of accidents or occupational diseases, training and compulsory medical checkups.

Expenses caused by establishing and maintaining a labour protection system, and assessing risks and all expenses that might be caused by implementing preventive measures and performing the internal control of labour environment are related to the labour environment.

There are few studies on costs for the quality of labour environment, and they are not excluded from the total cost of products, besides, capital investments, related to modernising equipment and repairing premises with the purpose of enhancing the quality of labour environment, are not classified separately as well.

The **research hypothesis**: costs for the quality of labour environment impact working conditions and cause additional expenses in enterprises.

The **research aim**: to identify the main cost items for the quality of labour environment.

The **research tasks** are to:
- characterise the costs for the quality of labour environment;
- analyse the impact of unsatisfactory labour conditions, unsafe human actions, and work organisation on the costs for the quality of labour environment in Latvian enterprises;
- investigate the dynamics of reimbursements for medical certificates (A), of industrial accidents and occupational disease cases and the costs caused by them.

The **research methods** used: monographic, logically constructive, analysis of dynamic rows, and data grouping.

Results and discussion

According to the traditional approach, costs are classified into primary, overhead, and management costs. Primary costs consist of direct expenses on materials and labour. These expenses are included into the cost of a product or service. Overhead costs comprise indirect expenses on materials (used for the system's operation, but not included in final products), labour (employees who are not engaged in producing products, but render services directly related to products) as well as fixed costs (rent, capital investments etc.). Management costs include expenses on administration and sales of goods and services. So this approach does not exclude costs that are required for activities related to quality assurance and error correction due to a poor quality of labour environment.

Costs for the quality of labour environment, by their structure, do not differ from other types of costs, for instance, costs related to operation, designing, sales, production, or other activities. Quality costs

might be covered from the budget, they can be measured, analysed, and reduced.

To control quality costs in a convenient way, Feigenbaums (A. Feigenbaums 1983, Mu ka A. 2000, Crow S., 2007, Juran Joseph M., 1988) recommends quality costs to be classified in three categories:

- preventive costs are costs needed for establishing, developing, and maintaining a quality system. Actually preventive costs might arise from faults in these operations;
- evaluation costs arise wherever quality tests are conducted. Evaluation costs include inspections, tests, and other activities required for identifying inappropriate products;
- fault costs arise from violating standards set for products and processes.

In enterprises, using a corresponding information source (processes, work instructions impacting product quality, compromises, audit results, quality protocols, servicing reports, and customer complaints) to identify, analyse, and evaluate causes of potential inadequacies, organising activities to solve problems related to preventive measures, proposing and controlling   preventive measures to provide their efficiency, and supplying all the necessary information about conducted activities in management reports are considered preventive measures.

However, the **labour environment's preventive costs** include the following costs caused by insufficient employee training, work with new technologies, purchase of personal and collective protective safety equipment, lack of interests for employees, lack of attention of employees in their workplaces, emotional discomfort for employees, stress, the employee self-annihilation syndrome, employee concerns about the future, and direct contacts with people. The main purpose of preventive costs is to reduce evaluation costs as much as possible.

According to the authors, the **labour environment's evaluation costs** include costs arising from employing individuals without employment contracts, paying no overtime, including night work, unsatisfactory working conditions, unsafe human actions, work organisation as well as biological, chemical, physical, and ergonomic factors.

After analysing official report data of the State Labour Inspectorate (VDI) in detail, the authors stated that **unsatisfactory working conditions** include a lack of safety equipment, damaged production equipment and instruments, defective materials, narrow and unsuitable premises, a lack of order at workplace, and unfit personal protective safety equipment. Numbers of industrial accidents caused by unsatisfactory working conditions are variable in

Table 1

Dynamics of industrial accidents caused by unsatisfactory working conditions in Latvian enterprises between 1997 and 2007

Year	Number of industrial accidents due to unsatisfactory working conditions in workplaces	Changes in number of industrial accidents due to unsatisfactory working conditions					
		Increase ratio		Increase index		Increase rate	
		Annual increase	Increase relative to 1997	Annual increase	Increase relative to 1997	Annual increase, %	Increase relative to 1997, %
1997	125	1.0	1.0	100	100		
1998	192	1.5	1.5	154.0	153.6	54.0	53.6
1999	173	0.9	1.4	90.1	138.4	-9.9	38.4
2000	185	1.1	1.5	107.0	148.0	6.9	48.0
2001	167	0.9	1.3	90.3	133.6	-9.7	33.6
2002	130	0.8	1.0	77.8	104.0	-22.0	4.0
2003	101	0.8	0.8	77.7	80.8	-22.0	-19.2
2004	126	1.2	1.0	125.0	100.8	25.0	0.8
2005	160	1.3	1.3	127.0	128.0	27.0	28.0
2006	180	1.1	1.4	113.0	144.0	13.0	44.0
2007	147	0.8	1.2	81.7	117.6	-18.0	17.6

Source: authors' calculations

the analysed period. During 1997-2000, an increase in the number of industrial accidents by 3.86% was observed, while since 2001 their number decreases. In 2007, an increase reached 6.76%. It indicates that employers are reducing unsatisfactory working conditions in their enterprises.

According to the data of Table 1, during 1997-2006 the average indicator of the dynamic row is 162 industrial accidents that are caused by unsatisfactory working conditions. On average, each case of unsatisfactory working conditions cause 1.2 industrial accidents annually. If compared to the base-year, a decrease in this factor was observed only in 2003. It can be explained by the State Labour Inspectorate's activities as the Labour Law and the Labour Protection Law started regulating labour environment problems in enterprises. Unsatisfactory working conditions are closely related to employees' motivations, working abilities, and productivity (studies by the Ministry of Welfare, 2007). The main reasons for unsatisfactory working conditions and an unsatisfactory labour environment are the labour environment's hazardous risk factors damaging health: 32% of 541 respondents pointed out that it is hard physical work (30%), the labour environment is not fit for employees' needs (27%), a dirty labour environment (22%), employers do not care for the labour environment and employees' safety and health (21%) (Studies by the Ministry of Welfare, 2007).

Unsafe actions by employees can be attributed to evaluation costs for the quality of labour environment, which include ignorance of labour safety regulations and instructions, cases when safety equipment is not used, inappropriate work methods are used, insufficient attention at workplace, and use of alcohol while working. After analysing the annual data, one can see that in 1997 this cause accounted for 50.91% of all the industrial accidents, while in 2007 it increased by 18.63%. If no attention is paid to unsafe actions by employees, their role will increase from year to year. The possible solutions are as follows: control of employees' actions regarding how they perform their work duties; particular work methods are advised for executing work tasks; self-initiatives are excluded among low qualification employees. If it is found out that an employee is an alcohol addict, the employer is supposed to arrange the employee's medical treatment.

The dynamics of unsafe actions by employees is shown in detail for the period from 1997 to 2007 (Table 2).

Table 2

Dynamics of industrial accidents caused by unsafe actions by employees in Latvian enterprises between 1997 and 2007

Year	Number of industrial accidents due to unsafe actions by employees in Latvian enterprises	Changes in number of industrial accidents due to unsafe actions by employees					
		Increase ratio		Increase index		Increase rate	
		Annual increase	Increase relative to 1997	Annual increase	Increase relative to 1997	Annual increase, %	Increase relative to 1997, %
1997	696	1.0	1.0	100	100		
1998	282	0.4	0.4	40.52	40.5	-59.5	-59.5
1999	339	1.2	0.5	120.2	48.7	20.2	-51.3
2000	490	1.4	0.7	144.5	70.4	44.5	-29.6
2001	524	1.1	0.8	106.9	75.3	6.9	-24.7
2002	935	1.8	1.3	178.4	134.3	78.4	34.3
2003	947	1.0	1.4	101.3	136.1	1.3	36.1
2004	1070	1.1	1.5	113.0	153.7	13.0	53.7
2005	1281	1.2	1.8	119.7	184.1	19.7	84.1
2006	1410	1.1	2.0	110.1	202.6	10.1	102.6
2007	1512	1.1	2.2	107.2	217.2	7.2	117.2

Source: authors' calculations

During the period of 1997-2006, the average indicator of the dynamic row was 913.8 industrial accidents caused by unsafe actions of employees in enterprises. A very large increase was observed since 2003. This increase can be explained by the introduction of new and modern technologies in enterprises and the outflow of a qualified labour force from the country to abroad. A less qualified labour force is not sure of its knowledge, skills and abilities, thus promoting the emergence of risk factors for industrial accidents in enterprises.

To reduce the number of unsafe actions by employees in enterprises, a preventive work has to be done: employers have to be trained, separately in each industry as well as in the group of new enterprises, paying special attention to industries having high risks in their labour environments.

Unsafe actions by employees are promoted by labour contracts not concluded in a written form. A study conducted by the Ministry of Welfare showed that it is observed in micro-enterprises (1-9 employees), new enterprises, enterprises owned by local residents, and private sector enterprises (studies by the Ministry of Welfare, 2007).

Low-quality work organisation also belongs to evaluation costs for the quality of labour environment and includes imperfections in labour management, insufficient control at workplace, insufficient training and instructing for employees, wrong choices of technologies, unsatisfactory delegation of work tasks and distribution of responsibilities, an unsatisfactory location of workplaces, unsatisfactory maintenance of work premises, and imperfections in division of working time. Employers can be blamed for poor work organisation that significantly impacts the risk of industrial accidents. The number of industrial accidents related to poor work organisation has increased by 17.66% during the period of 1997-1999, while there is a gradually decreasing trend since 2000, reaching 11.50% in 2007 (Table 3). One can see improvement in work organisation, labour management and control.

Explanatory activities, organised and managed by professionals, have to be carried out for employers by holding trainings in accordance with types of enterprise activity.

The quality of labour environment has an important role in work organisation in Latvian enterprises. Employers are responsible for work organisation in their enterprises.

During the period of 1997-2006, the average indicator of the dynamic row was 303.9 industrial

Table 3

Dynamics of industrial accidents caused by imperfections in work organisation in Latvian enterprises between 1997 and 2007

Year	Number of industrial accidents due to imperfections in work organisation in Latvian enterprises	Changes in number of industrial accidents due to imperfections in work organisation					
		Increase ratio		Increase index		Increase rate	
		Annual increase	Increase relative to 1997	Annual increase	Increase relative to 1997	Annual increase, %	Increase relative to 1997, %
1997	314	1.0	1.0	100	100		
1998	508	1.6	1.6	161.8	161.8	61.8	61.8
1999	555	1.1	1.8	109.3	176.8	9.3	76.8
2000	489	0.9	1.6	88.1	155.7	-11.9	55.7
2001	412	0.8	1.3	84.3	131.2	-15.7	31.2
2002	186	0.5	0.6	45.2	59.2	-54.9	-40.8
2003	149	0.8	0.5	80.1	47.5	-19.9	-52.5
2004	269	1.8	0.9	180.5	85.7	80.5	-14.3
2005	248	0.9	0.8	92.2	79.0	-7.8	-21.0
2006	227	0.9	0.7	91.5	72.3	-8.5	-27.7
2007	250	1.1	0.8	110.1	79.6	10.1	-20.4

Source: authors' calculations

accidents caused by imperfections in work organisation. The average annual increase ratio was 1.04. If compared to the base-year, a substantial decrease in the impact of this factor was observed as enterprise managers enhance their qualifications by attending various training courses and developing their skills, thus improving work organisation in enterprises. It is advised to conduct explanatory activities informing about the most frequent causes of industrial accidents in workplaces in Latvia to decrease the number of these accidents. This kind of information has to be regularly published in the media.

Reimbursements for medical certificates (A) of sick employees, those involved in industrial accidents, and occupational patients are included by the authors in the **labour environment's quality fault costs**.

According to the CSB data on sick employees, whose first 14 days of sick-leave are compensated by employers from their enterprise budgets (since January 1, 2009 – 10 days), one can conclude that these expenses increase. A larger increase in the expenses on medical certificates is observed in the private sector – by 58.5% over the recent five years (Table 4).

According to the data of Table 4, one can conclude that in 2004 the proportion of the expenses on medical certificates (A) in the public sector accounted for 43.9%, while in the private sector – 56.1%. However, in 2005 it decreased to 42.6% in the public sector and increased in the private sector to 57.4%. As we can see, the expenses gradually decreased in the public sector and increased in the private sector. This situation can be explained by the fact that state and municipal enterprises pay more attention to the quality of labour environment than private entrepreneurs.

An industrial accident is a result of unpredictable disturbances, which impacts the physical health of employees and which arose from natural causes that

could be avoided. They differ from other physical damages in the fact that injuries are immediate.

The data from annual reports of Regional State Labour Inspectorates (RVDI) have been used in the research:

- **Eastern Vidzeme RVDI** that includes districts of Alūksne, Balvi, Gulbene and Madona;
- **South RVDI** that includes districts of Aizkraukle, Jēkabpils and Ogre;
- **Kurzeme RVDI** that includes districts of Kuldīga, Liepāja, Saldus, Talsi and Ventspils;
- **Latgale RVDI** that includes districts of Daugavpils, Krāslava, Ludza, Preiļi and Rēzekne;
- **Riga RVDI** includes the city of Riga, the city of Jūrmala and Riga district;
- **Zemgale RVDI** that includes districts of Bauska, Dobele, Jelgava and Tukums;
- **Northern Vidzeme RVDI** that includes districts of Cēsis, Limbaži, Valka and Valmiera.

After analysing the reports of the State Labour Inspectorate on industrial accidents in workplaces, one can conclude that the leading position is taken by the economically active enterprises in Riga region in which the proportion of all the industrial accidents in Latvia accounts for 45.2% (Figure 1).

According to the information in Figure 1, one can see that the second position is occupied by the economically active enterprises registered in Kurzeme region where the proportion of registered industrial accidents equals to 13.1% of the total number of industrial accidents. The third position is occupied by Northern Vidzeme region. Industrial accidents cause both economic losses and, first of all, human losses. Industrial accidents occur due to certain causes that always can be predicted.

The factors of the working process and production environment, which may harmfully impact employees' health and working abilities, are called occupational

Table 4

Reimbursements for medical certificates (A) and their structure, thousand LVL

No.	Year	Expenses on medical certificates (A)		
		In total	In public sector	In private sector
1.	2004	16175.1	7093.5	9081.7
2.	2005	20334.0	8657.4	11676.7
3.	2006	26919.9	10800.1	16119.8
4.	2007	39916.3	15787.2	24129.1
5.	9 months of 2008	34255.7	13757.0	19498.7
		137601.0	56095.2	80506.8

Source: CSB data
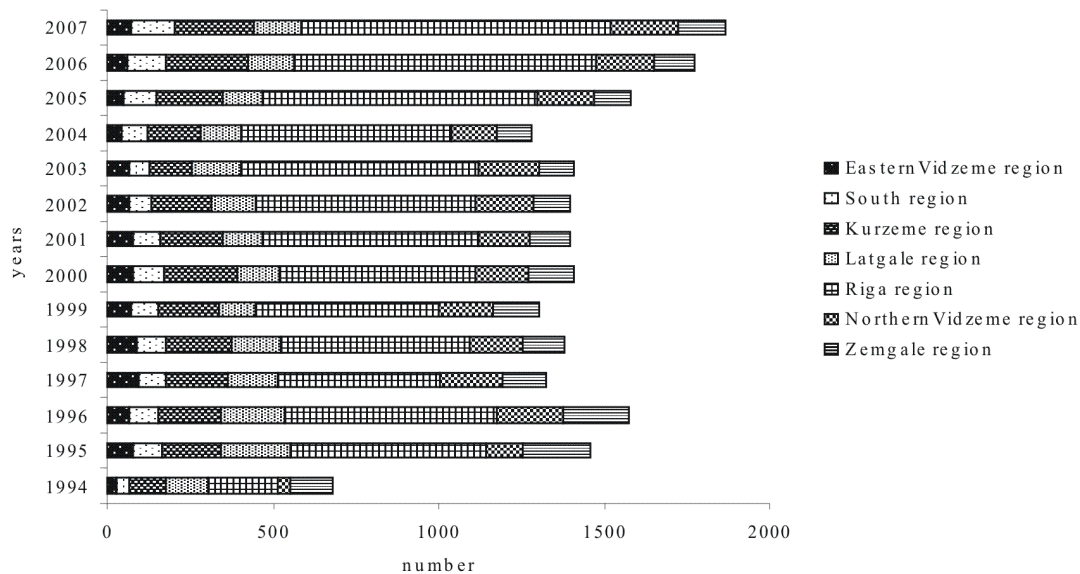
Source: made by the authors according to VDI reports

Figure 1. **Number of registered industrial accidents in the regions of
Latvia between 1995 and 2007**

harm. It should be especially emphasised that occupational harm at workplace is not unavoidable. Occupational harm can be explained by:

− wrong organisation of the working process (an inconvenient pose for the body, excessive exertion for some organs or groups of organs, a wrong working routine etc.);
− unfavourable working conditions impacting employees in the working process (high or low temperature of air, high or low atmosphere pressure, loud noises, vibrations, dust, toxic steam, gases etc.);
− ignorance of general sanitary standards and requirements in workplaces (insufficient floor space, as well as heating, ventilation, lighting, and other defects).

Summarising the data on the employed having occupational diseases for the first time in the regions of Latvia, it was observed that between 1994 and 2007, 5211 new occupational disease cases were registered. In total, these new cases were registered for 9817 occupational diseases. On average, every case comprised 2.0 occupational diseases. It indicates to the simultaneous effect of several hazardous occupational factors (Figure 2).

Figure 2 reveals that the proportion of first-time occupational disease cases in Riga region constitutes 51% of the total number of first-time occupational disease cases in Latvia over a period of 14 years. It is related to the concentration of companies and employees in the capital city. The second position is occupied by Zemgale region and the third position

− by Northern Vidzeme region, with 9.6% of the total number of first-time occupational disease cases. The largest increase in the number of occupational patients was in 2005 – by 544% as compared to the base-year. This situation can be explained both by employees' awareness of occupational diseases and by legislative amendments which stated that employees are supposed to undergo health checkups as many employees have worked for a long time being impacted by hazardous risk factors as well as by an increase in the number of inspections done by the State Labour Inspectorate. A decrease in the number of occupational patients was observed only in 1997. Any increase in the number of occupational patients in enterprises is mostly promoted by not identifying risk factors and not avoiding them in workplaces, by several risk factors that combine, by a long length of service in an unfavourable labour environment, by the impact and concentration of the labour environment's hazardous factors, and by belated visits to doctors because of health problems.

An enhanced labour environment in enterprises provides stable business development, avoids losses of experienced and worthy employees, damages for equipment, and losses in production during idle times and as a result of industrial accidents. An enhanced labour environment also saves wage funds because lower qualification employees can be employed for lower wages. On the contrary - an enhanced labour environment is an attractive offer for competent and capable specialists. The attitude of cooperation partners, customers, investors, as well as creditors
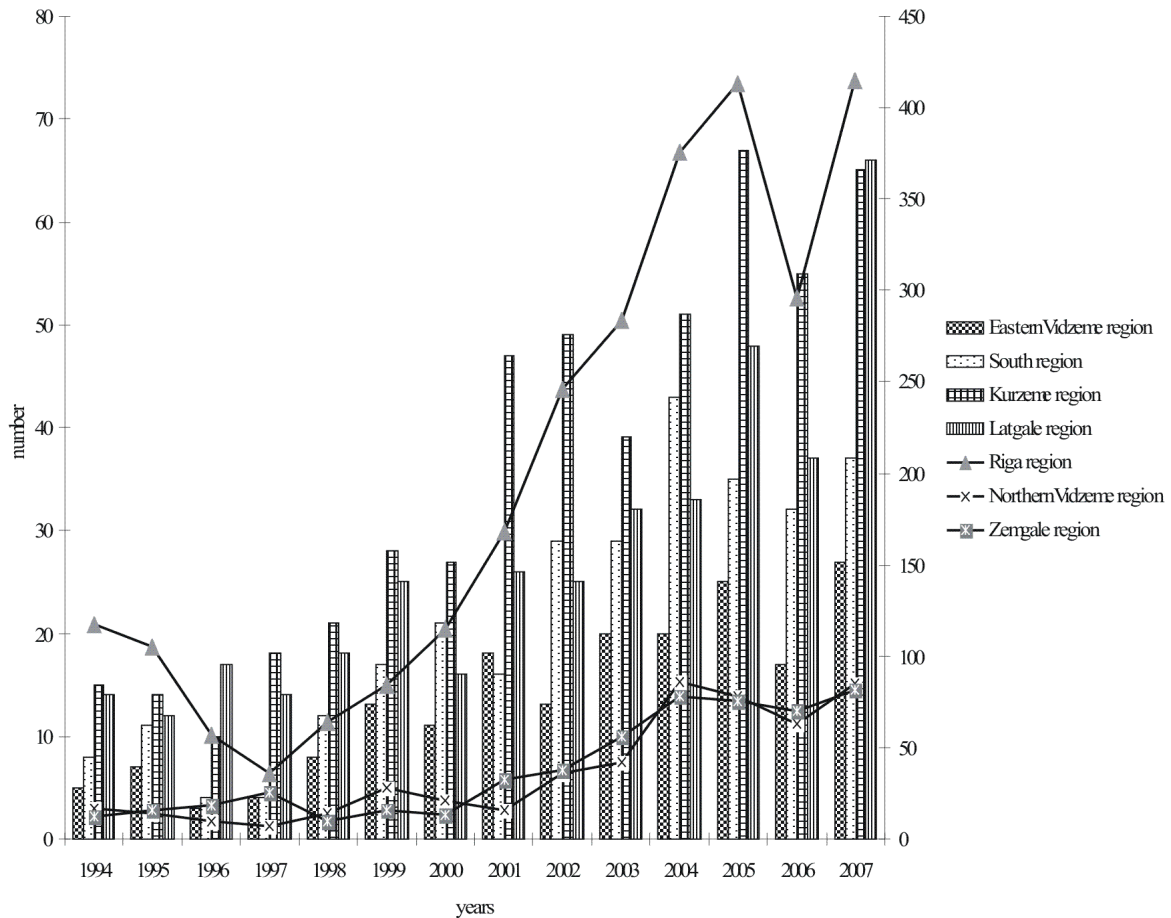
Source: made by the authors according to VDI data

Figure 2. **Dynamics of the first-time occupational disease cases in the regions of Latvia between 1994 and 2007**

also stimulates to find solutions for problems of labour environment. A low culture of work, psychological stress among all employees, careless attitude of employees, and an unstable working process are obvious things that make partners distrustful and cause losses in business.

Conclusions

1. Costs for the quality of labour environment include preventive, evaluation, and the labour environment's fault costs.
2. The quality of labour environment is impacted by unsatisfactory working conditions, the main risk factor of which is physically hard work.
3. The labour environment's fault costs for reimbursing for medical certificates (A) have increased by 41.5% in the public sector and by 58.5% in the private sector over the recent five years.
4. Employers have to pay more attention to preventive costs for the quality of labour environment

as it will lead to reducing evaluation and fault costs for the quality of labour environment, thus increasing the competitiveness of their enterprises.

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Categories of Financial Result and Dividend Policy of Polish Joint Stock Companies of the Agricultural Foodstuff Sector[1]

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Abstract
In the science of finance there is lack of common opinion on the role of dividend policy and its impact on the financial situation of an enterprise. The research presented in this article was an attempt to assess one of the aspects of a dividend policy – dependencies between different categories of financial result in two groups of Polish enterprises of agricultural-foodstuff industry: the first group - companies paying dividends and the second group – companies where such payments did not occur in the studied period (years 2001-2006). To meet the aim of the research the following hypothesis was formulated: decisions on dividend payment are taken in companies that achieve higher values of financial result (specified, several categories of financial result were taken into consideration). To proceed with the research the author developed several research tasks involving statistical methods (correlation analysis, test on the mean difference) and comparative descriptive analysis. It was concluded that correlation rates of highest values were observed in dependency between the amount of dividend paid and the level of operating result as well as the level of net financial result. Considerably higher level of the result on sales, operating result, result from ordinary activities before tax and net result was observed in the companies that followed the policy of dividend payment. The results achieved by this group of enterprises showed also smaller amplitude of fluctuations. Results from the test on mean difference revealed that in the whole studied period the result on sales was the factor that was diversifying (in a statistically important way) the compared groups. The net financial result on the contrary turned out to be the factor that diversified the studied groups the rarest in the way that was statistically material.
Key words: financial result, dividend policy, agricultural-foodstuff sector.

Introduction

Profit and loss statement constitutes an integral part of financial statements of an entity, one of the most important elements next to the balance sheet. It systematises all revenues and costs appropriately (M. Sierpińska and T. Jachna 2004). It constitutes a valuable combination of all elements forming the financial result for a particular year. Decisions concerning the division of net profit in companies are made by the general meeting of stockholders / shareholders.

The net profit made may be assigned to:
− increase of reserve capital,
− increase of share capital,
− increase of reserve capital, rewards and bonuses for the employees,
− make a contribution to the social fund,
− dividends and payments for stockholders, shareholders, partners,
− social-educational, charity aims (A. Kuczyńska-Cesarz 2003).

In the common opinion, the internal source of capital that is planned for investment purposes is the enterprise's profit. The profit is the source of self-financing of development (D. Krzemińska 2002, page 41). Regarding this, decisions concerning profit division are very difficult, especially decisions concerning the payments from the profit in form of dividend for stockholders / shareholders. It should not be forgotten that the owners of the equity capital invested (it is called indefinite) take a higher risk than the donors of debt capital because they are involved in the business activities of the enterprises while the donors of debt capital provide the capital for a certain period of time and against defined cost (D. Krzemińska 2002). Therefore a part of them expects the dividend payments.

From the point of view of enterprise's development and stabilisation of its position on the market, the fundamental thing is investing the capitalised profit in the development of the company. The owners can invest the capitalised profit in the

development through purchasing and modernisation of the assets' elements, introducing technological and organisational advance or training as well as the courses for employees (D. Krzemińska 2002, M. Sierpińska and T. Jachna 2004).

On the contrary though each stockholder or shareholder has the right to participate in profit division of the company and what is more each of them has the right to the future, higher profits resulting from retaining the profit for the development. As the dividend payment is connected with transaction costs, it can be recognised that the reinvestment of profits is more advantageous. Experiences indicate though that "Usually dividends reveal much more stability than the profit achieved. The enterprises warn that the relation between dividend payments to achieved profits should be stable in the long period of time" (D. Krzemińska 2002). In the opinion of Modigliani and Miller (M&M), in term of perfectly competitive capital market, division of profit on the reinvested part and on the part paid in form of dividends is neutral from the point of view of the value of the company, and the value of an entity is dependent on the ability of assets to generate the profit and not on the manner of its division (F. Modigliani and M. Miller 1961). In reality the market is not perfectly competitive and this issue should be discussed more widely. High share of reinvested part of the profit means a low level of dividends. It can cause financial problems for shareholders, and as a result it can lead them to debts. Based on Modigliani's and Miller's deliberations Neutral Dividend School was formed which found many propagators including among others Black and Scholes or Petty and Scott. It was not decided however until today if dividend payment makes positive impact on financial situation of a company or not – good illustration of this uncertainty was founding of Prodividend School and Antidividend School (R.H. Litzenberger and K. Ramaswamy 1974, J.M. Poterba, and L.H. Summers 1984) (more (M. Sierpińska 1999, J. Franc-Dąbrowska 2008)).

Therefore there is no unambiguous approach to the issue of profit division and forming of dividend policy. As the decisions concerning division of net profit are connected directly with its value, it seems to be vital to study the dependencies between the different categories of financial result and dividend policy carried out, especially that similar researches have not been conducted so far within Polish companies of agricultural-foodstuff industry.

Net sales (of products, goods for resale, materials)

(+-) Change in inventories of products (increase – positive amount, decrease - negative value)

- Operating expenses (breakdown by nature of expenses)

- Materials and goods sold at cost value

Profit or loss from sales

+ Other operating income

⎫
⎬ *Result from other operating activities*
⎭

- Other operating expenses

Operating profit/loss

+ Financial income

⎫
⎬ *Result from financial activities*
⎭

- Financial expenses

Profit or loss on ordinary activities before tax

+ Extraordinary gains

⎫
⎬ *Result from extraordinary activities*
⎭

- Extraordinary losses

Gross profit/ loss

- Obligatory charges against the profit or loss (income tax, charges against the profit in state owned enterprises)

Net profit/ loss

Source: author's research based on A. Kuczyńska-Cesarz 2003, J. Bereżnicka and J. Franc-Dąbrowska 2006

Figure 1. **Forming of the financial result according to the comparative profit and loss account**

Figure 1 presents the forming of the financial result according to the profit and loss account (by nature of expense type of P&L).

Aim, methodology and scope of studies

The aim of the researches conducted was to examine the levels of financial result of different categories in Polish agricultural-foodstuff companies which were paying dividends and companies were such payments were not made. To meet the aim of the research the following hypothesis was formulated: decisions about dividend payment are taken in companies that achieve higher values of financial result of different, selected categories. The following tasks were formulated to conduct the research:

− examination of correlation rate calculated for variables characterising dependencies between the amount of dividend payment and financial result levels (for selected categories of the financial result);
− examination of average amounts of financial result in two group of companies (paying and not paying dividends);
− examination of the level of statistical materiality of diversification of financial result in two group of companies studied.

The research activities covered the population of Polish joint-stock companies of the agricultural-foodstuff sector, listed on Warsaw Stock Exchange (WSE) for the period of 2001-2006. This research is not representative for the whole number of the companies listed on WSE. As in the following years the number of companies paying dividends was diversified, the number of entities paying dividends (marked with D) and those where payment were not made (marked with ~D) is different. It is coherent with the research hypothesis taken and assuming that the entities making higher financial results make a decision about dividend payment in years when they achieved not satisfying financial result, they did not make such payments. However, the entities that achieved higher, than in the last years, level of net profit could make decisions about dividend payment.

In order to conduct statistical analysis, the number of companies paying dividend in a certain year was defined on the basis of the cash flow statement. The correlation analysis between the amount of dividend payment and values of the financial result of selected categories was conducted in order to meet the aim of the research. The next step was the calculation of average values of financial results (for selected categories) separately for two groups of companies: in entities making cash payments from the profit and the entities that do not do this. The tests on the mean difference between entities paying and not

paying dividend were conducted in order to verify comparative descriptive analysis with statistical methods.

Research results and discussion

Table 1 presents the outcomes of correlation analysis calculated between the amount of dividend payment and the financial result of different categories. It results from the analysis conducted that there existed statistically diversified dependency between studied variables. The strongest dependency occurred between the amount of dividend payment and the value of the net financial result that seems to be obvious. Not so unambiguous were dependencies with other categories of financial result. In general it has to be recognised that there were strong correlation relations between the amount of dividend payment and the values of the financial result of different categories. In case of dependency between the amount of dividend payment and the value of the result from sales, the statistically strongest dependency occurred in 2001 and 2004, considerably lower value of correlation rate characterised these variables in 2005. Considerably higher values of correlation rates occurred in case of relations between the amount of dividend payment and the operating result. It has to be recognised that these relations were statistically strong. Also correlation rates of high value were observed in case of dependencies between the amount of dividend payment and the result on ordinary activities before tax, except for 2002 (author's opinion is that the result from ordinary activities belongs to the category that indicates the effects of enterprise's management in a very actual way. It does not decrease the essence of the net financial result that is burdened with the information about results on the extraordinary activity and the amount of tax. These both groups influencing the value of the net financial result are not dependent directly on the effectiveness of management.).

In order to make the research more detailed the analysis of average value of the financial result of different types was conducted, and the results of this analysis were presented in Table 2. Stock companies of the agricultural-foodstuff sector were characterised by the relative stable level of the result on sales. Disturbances and a significant decrease of its value were observed in 2003 and in 2005. The result on sales however was on average on the same level and amounted to about PLN 223.7 thousand. A strong diversification was observed in case of population's division. Companies paying dividend were characterised by definitely higher level of the result on sales (PLN 644.4 thousand on average). Entities not paying dividends achieved the result on

Table 1

Values of correlation rates calculated for the variables characterising the dependencies between the amount of dividend payment and different categories of the financial result for the stock companies of the agricultural-foodstuff sector in 2001-2006, %

Correlation type	Year					
	2001	2002	2003	2004	2005	2006*
Correlation between dividend payment and the result from sales	0.92	-0.73	0.66	0.84	0.58	.
Correlation between dividend payment and the operating result	0.88	-0.79	0.96	0.91	0.98	.
Correlation between dividend payment and the result on ordinary activities	-0.81	-0.54	0.91	0.79	0.97	.
Correlation between dividend payment and net financial result	-0.87	-0.66	0.99	0.99	0.98	.

* estimation of correlation rates impossible due to too small sample size (companies paying dividends).

Correlation rates are essential with $p < 0.05$.

Source: author's research

Table 2

Average values of different categories of the financial result characterising companies of the agricultural-foodstuff industry with the division companies paying and not paying dividend in 2001-2006 [thousand PLN]

Category of financial result	Data for years					
	2001	2002	2003	2004	2005	2006
Result on sales - average value	232205	246778	183158	244335	198247	237646
Result on sales D	703259	962862	383636	635100	553921	627468
Result on sales ~D	60913	67757	82920	88030	68911	166770
Operating result - average value	12359	22258	26217	28256	37286	52910
Operating result D	31111	71007	49852	61201	107562	192084
Operating result ~D	5540	10071	14399	15078	11731	27605
Result from ordinary activities - average value	-3154	14816	20050	25495	40770	52691
Operation result D	-9230	58095	44751	55263	118995	191309
Operation result ~D	-945	3997	7699	13588	12325	27488
Net financial result - average value	-4855	10657	20599	32520	35242	46350
Net financial result D	-15431	40628	51632	86744	104811	180434
Net financial result ~D	-1009	3164	5023	10818	9944	21971

Source: author's research

sales that was seven-fold lower on average (average value in 2001-2006 amounted to PLN 89.2 thousand). In case of this result category, there is no doubt that there is a diversification of its value between studied groups of the enterprises.

As the issue of a competent creating of revenues from sales constitutes a base of contemporary conceptions of enterprise's development (e.g. value based management (Franc-Dąbrowska 2007), the dependencies in the scope of forming of the result on

sales between the studied groups of enterprises were presented in Figure 1.

The operating result that takes into account among others "the flow" of fixed assets and thus increases information about functioning of the enterprise in the scope of sales and purchase of new elements of assets is the next stage of forming of the financial result. On average the value of operating result amounted to PLN 29.9 thousand and revealed a distinct growing trend (growth of the value of over fourfold).
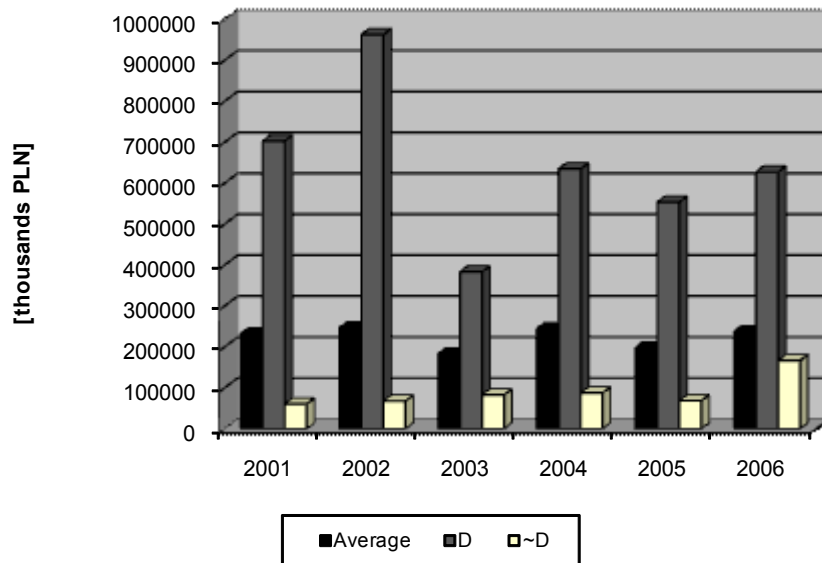
Source: author's research

Figure 1. **Value of the result on sales in the companies of the agricultural-foodstuff industry with the
division in companies paying and not paying dividend in 2001-2006**
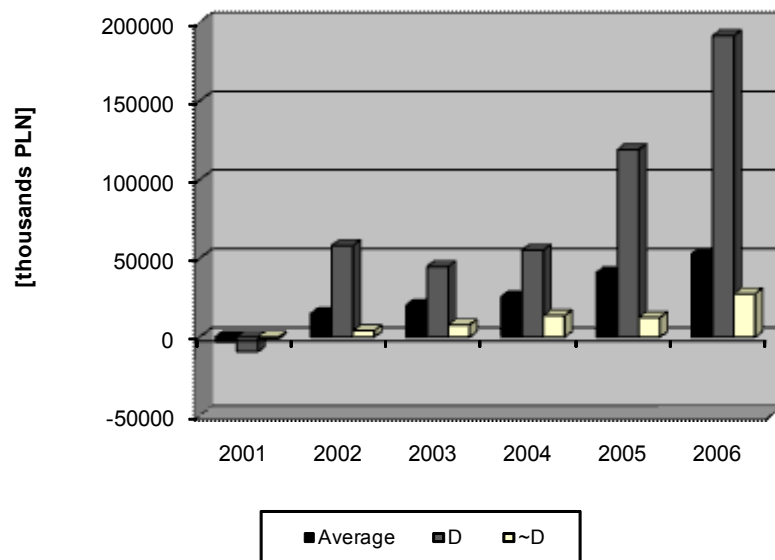
Source: author's research

Figure 2. **The value of the result on ordinary activities in companies of the agricultural-foodstuff
industry with the division in companies paying and not paying dividend in 2001-2006**

Similarly as in the case of the result on sales, also
the operating result diversified the enterprises paying
and not paying dividends. Despite the disproportion
in the value in this category of the financial result (in
the enterprises making payments from the profit it
was higher of six-fold on average), in both groups it
revealed a significant growing trend. Considering the
simultaneous growing trend in the value of the result
on sales, it has to be recognised that it is an indication
of the development of the studied companies.

The category that requires a special attention is
the result on ordinary activities. It has to be noticed
that in 2001 the companies achieved the negative
result on average (also in the analysed subgroups).
But since 2002 a systematic increase in the value of
this result category has occurred, thus confirming
the observations about the development of stock
companies of the agricultural-foodstuff sector.
Similarly, as in the case of the result on sales and
operating result, also this category of financial result

was distinctly diversifying the companies paying and not paying dividend. The diversification between groups was distinct and reached about PLN 66 thousand on average per enterprise (average value of the result from ordinary activities in 2001-2006 in companies making cash payments from the profit amounted to PLN 76.5 thousand, in companies that were not making such payments - PLN 10.7 thousand). Growing trend of the result on ordinary activities has to be underlined as well for all companies on average,

as in the division of the analysed groups that should be positively assessed. The discussed dependencies are presented in Figure 2.

The last analysed category is the net financial result that constitutes the base of all analysis and assessments. In the studied period the net financial result has increased several times its value and it run at PLN 24.4 thousand on average. It is the next category of the financial result, considerably diversifying analysed groups of companies. Except

Table 3

Diversification of results in companies of the agricultural-foodstuff industry, with the division in companies paying and not paying dividend – results of test on mean difference

Detailed list	Statistics t	p-value	Significance of differences
Year 2001			
Result on sales	2.667874	0.020491	**YES**
Operating result	2.079182	0.059709	No
Result on ordinary activities	-0.370427	0.717520	No
Net result	-0.739864	0.473609	No
Year 2002			
Result on sales	3.507973	0.004318	**YES**
Operating result	2.852224	0.013599	**YES**
Result on ordinary activities	3.911204	0.001788	**YES**
Net result	3.506113	0.003868	**YES**
Year 2003			
Result on sales	2.210698	0.045592	**YES**
Operating result	1.686104	0.115612	No
Result on ordinary activities	1.720359	0.111026	No
Net result	1.722593	0.108650	No
Year 2004			
Result on sales	2.716882	0.018716	**YES**
Operating result	1.910257	0.080286	No
Result on ordinary activities	2.089070	0.058672	No
Net result	1.938771	0.076407	No
Year 2005			
Result on sales	-3.91504	0.002413	**YES**
Operating result	-2.19251	0.048788	**YES**
Result on ordinary activities	-2.59812	0.024777	**YES**
Net result	-2.09656	0.057898	No
Year 2006			
Result on sales	-3.6708	0.004311	**YES**
Operating result	-3.2186	0.008179	**YES**
Result on ordinary activities	-11.5786	0.000000	**YES**
Net result	-3.1929	0.008563	**YES**

Source: author's research

for 2001 when the units achieved the negative value of the net financial result, during the next years its value was systematically increasing. No fluctuations characterising the other result categories were observed (except for small decrease of the value of the net financial result in the group of companies not paying dividend in 2005). Increase of the result made in companies making cash payments from the profit reached the value that was twelve times higher than in 2001, in case of companies not paying dividend this increase was about of twenty-three-fold (It should not be forgotten that the companies that did not pay dividend, "took off" from the smaller base and the final result was several times lower, though the increase was several times higher, in comparison with the enterprises that paid cash payments from the profit.).

Table 3 presents the results of the test on the mean difference between the analysed categories of the result. The results of the test indicate clearly the statistically essential diversification of the categories of the financial result in the analysed groups of the enterprises. Though, in several cases these differences are not statistically important. The test on the mean difference explicitly identifies the result on sales, as the result category diversifying the enterprises paying dividend and not paying dividend in all studied years in the way that is statistically important. It can be recognised that it is a factor determining the decisions about dividend payment. Polish companies of agricultural food-stuff industry which paid dividends achieved higher levels of results from sales than the companies where such payment has not occurred (with p-value 0.002413-0.045592).

In case of the operating result, the test's results are not so unambiguous. In 2001, and 2003-2004 the value of the operating result did not diversify the studied groups of enterprises in the way that is statistically important. Though in 2002, and 2005-2006 the diversification of this result category was statistically important. Analogical situation was in the case of the value of the result on ordinary activities before tax. It can be therefore concluded that Polish companies of agricultural food-stuff industry that were paying dividends were characterised by higher levels of operating results and results from ordinary activities before tax than companies which did not pay dividends; however this diversification was not significant in the studied period of time (from statistical point of view).

Net financial result turned out to be the least statistically important category (only in 2002 with p-value 0.003868 and in 2006 with p-value 0.008563 net financial result was a factor that diversified considerably companies paying and not paying dividends) diversifying the studied groups

of enterprises. Diversification of the levels of net financial result between two groups of companies should be considered then as immaterial.

Conclusions

The results of the research concerning the dependencies between different categories of financial result and dividend policy were presented in this article. The following final conclusions were formulated:

1. Statistically material, significant dependency was identified between some of the studied categories of the financial result and the amount of dividend paid.
2. Correlation rates of highest values were observed in dependency between the amount of dividend paid and the level of operating result as well as the level of net financial result.
3. It was found that Polish joint-stock companies of the agricultural-foodstuff sector demonstrated significant diversification in the values of financial results of different categories (in the division in companies paying and not paying dividends).
4. Considerably higher level of the result on sales, operating result, result from ordinary activities before tax and net result was observed in the companies that followed the policy of dividend payment. The results achieved by this group of enterprises had also smaller amplitude of fluctuations.
5. It has been stated that the companies paying dividend as well as companies not paying dividend were characterized by the growing trend of the financial result of all categories, indicating the development of the studied population.
6. Results from the test on mean difference revealed that in the whole studied period the result on sales was the factor that was diversifying (in a statistically important way) the compared groups. The net financial result on the contrary turned out to be the factor that diversified the studied groups the rarest in the way that was statistically material.

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Foreign Direct Investment and Economic Growth in Latvia

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Abstract

FDI into transition economies theoretically may facilitate growth, promote technical innovation, and accelerate enterprise restructuring. All of these potential benefits of FDI are important but there is no evidence that positive externalities generated by foreign presence in Latvia actually exist.

The exact nature of relationship between FDI and their host economies vary between economic sectors. Further, the effects of economic and other variables rarely are instantaneous; it takes some time for consumers, producers and other economic agents to respond. So the econometric models using time series data are often formulated with lags in behaviour. The econometric model of investment behaviour is applied to quarterly data starting with the year 2000.

Key words: Foreign Direct Investment (FDI), Gross Value Added (GVA), economic activity, Granger causality, distributed – lagged models.

Introduction

One of the important tasks of the government in transition economy countries is drawn in foreign and own investment to improve countries macroeconomic indicators such as GDP, average wage, trade and decrease unemployment rate. For the government it is necessary to choose such investment policy that is attractive for investors.

This paper is a continuation of the authors' research which are published in the papers of Brekis, Revina (2003), Revina, Brekis (2004, 2005), and Revina (2004).

Brekis and Revina (2003) have demonstrated that in Latvian corporate income tax the part of revenues in total tax revenues is higher than in Estonia and Lithuania, so Latvian enterprises have smaller possibility to invest own capital into the enterprise development. The figures of Latvian enterprises annual investment in fixed assets at current prices have decreased from 5.4% in 1999 to 0.8% in 2001. Rather high interest rate on credit unfavourably influences Latvian entrepreneurs' attitude to the state, so they do not see the state long-term investments strategy, and support to business development.

The conclusion from Revina (2004) paper deals with the necessity of a special long-term strategy for foreign investment, public investment, and trade to decrease net exports and investment process analysis to see why investment has no effect on exports and imports.

Revina, Brekis (2005) research showed that the regions experiencing marked growth of the enterprises number also show a bigger GDP growth per capita. The growth of the number of enterprises, the new enterprises coming into the market, and stiffer competition, force the existing enterprises to undertake innovation and scale up productivity, and thus to stimulate the economic growth in a region.

The aim of this paper is to investigate the causality between FDI and economic growth for Latvia. The methodology of the paper includes the content analysis and research of different sources of literature of economic growth as well as empirical analysis of the data from CSB of Latvia and Granger causality test.

All necessary values are computed using Excel and E-Views 5.

Section I of this paper will provide the analysis of foreign investment assets from different aspects, Section II will analyse foreign direct investments by statistical regions and investment connection to overall entrepreneurship activity, while Section III will show some econometric models of investment.

I. Foreign investment stock in Latvia

At first we have to analyse the situation with received foreign direct investment (Table 1). We see that foreign direct investment has increased 7 times if compared years 2002 and 2007. The biggest increase of FDI was LVL 533 million from 2005 to 2006.

Table 2 shows foreign investment stock in the company capital of enterprises registered in Latvia by kind of activity (NACE) made by non-resident natural and legal person as direct and portfolio

Table 1

Received foreign direct investment (total in million LVL, per capita in LVL, total investment against GDP in %)

	2002	2003	2004	2005	2006	2007
Total	156.6	174	343.9	399.1	932.1	1 116.90
Per capita	67	74.8	148.7	173.5	407.4	490.7
% against GDP	2.8	2.7	4.6	4.4	8.3	8

Source: Central Statistical Bureau of Latvia, http://data.csb.gov.lv/ 30.10.2008.

Table 2

Foreign investment stock in the company capital of enterprises registered in Latvia by kind of activity (in thousand LVL)

	2002	2003	2004	2005	2006	2007
Total	1 168 155	1 274 573	1 291 472	1 386 485	1 747 650	2 301 474
NACE						
A	6 178	11 588	19 919	21 192	17 825	32 592
C+D+E	248 885	268 373	229 389	249 796	249 749	293 850
F	5 293	8 943	12 732	16 283	16 305	31 953
G	164 701	177 151	189 705	196 589	210 410	233 887
I	205 396	199 191	193 598	198 030	200 461	245 024
J	185 745	195 292	265 322	310 251	446 101	742 312
K	252 228	261 175	297 260	314 621	350 922	459 014

Source: Central Statistical Bureau of Latvia, http://data.csb.gov.lv/ 2008.10.30.

investments in the company capital of enterprises and firms registered in Latvia. Only those nine sections of NACE are mentioned, which we think could be important for Latvian economy:

A – agriculture, hunting and forestry,
C – mining and quarrying,
D – manufacturing,
E – electricity, gas and water supply,
F – construction,
G – wholesale and retail trade; repair of motor vehicles, motorcycles, and personal and household goods,
I – transport, storage and communications,
J – financial intermediation,
K – real estate, renting and business activities.

We see that practically investment stock has increased in all the selected sections, and differs only with the quantity of made investments. We compare only two years, i.e., 2002 and 2007, other corresponding numbers for sections and their increase are seen in Table 2. So total investment stock has increased from LVL 1 168 155 thousand in 2002 to LVL 2 301 474 thousand in 2007, practically investment has increased almost 2 times. Similarly from 2002 to 2007 investment has increased 5 times

in Section A, 1.2 times in Section C+D+E, 6 times in Section F, 1.4 times in Section G, 1.2 times in Section I, 4 times in Section J and 1.8 times in Section K.

The paper will analyse also the share of any section in GVA, and also the annual share of total GVA. In Table 3 we see GVA by our selected kinds of activities. Table 3 shows that from 2002 to 2007 GVA has increased by about LVL 7099.6 million or annually by LVL 1183.3 million on average, from 2003 to 2007 GVA has increased by about LVL 6572.5 million or on average 1406.6 million Lats in year and from year 2004 until year 2007 GVA increased about 5626.3 million Lats or annually by LVL 1406.6 million on average. We come to a conclusion that accession to the European Union gave effect for GVA. The numbers in Table 3 show that the most important sections with the percentage input more than 10% for GVA in Latvia are C+D+E (manufacturing), G (wholesale and retail trade), I (transport, storage and communications), and K (real estate, renting and business activities). Although GVA at basic prices from 2002 to 2007 has increased in all our selected kinds of activities, the percentage input has decreased in Section A (agriculture, hunting and forestry) by 1.2%, Section C+D+E by 3.6% and

Table 3

Gross value added (at constant prices) by kind of activity (million LVL)

	2002	2003	2004	2005	2006	2007
Total	5188.6	5715.7	6661.9	8029.4	9835.8	12288.2
NACE						
A	228.9	228.6	286	308.9	333.8	390.3
%	4.4	4	4.3	3.8	3.4	3.2
C+D+E	891.2	954.9	1095.4	1241.5	1428.4	1673.9
%	17.2	16.7	16.4	15.5	14.5	13.6
F	287.4	320.9	387.6	490.9	726.1	1035.5
%	5.5	5.6	5.8	6.1	7.4	8.4
G	922.7	1022.9	1258.2	1616.7	2050.5	2495.7
%	17.8	17.9	18.9	20.1	20.9	20.3
I	785.6	876.7	983.3	1118.1	1126	1330.7
%	15.2	15.3	14.8	13.9	11.4	10.8
J	261.1	282.6	337.5	478.4	667.8	939.5
%	5	4.9	5.1	6	6.8	7.7
K	720.5	783.3	922	1137.9	1466.9	1943.3
%	13.9	13.7	13.8	14.2	14.9	15.8

Source: Central Statistical Bureau of Latvia, http://data.csb.gov.lv/ 30.10. 2008.

Section I by 4.4%. The percentage input has increased in Section F by 2.9%, Section G by 2.5%, in Section J by 2.7%, and Section K by 1.9%. The analysis of this percentage input showed that the potential growth of GVA in Latvia case was given by non-production branches. We think that it is based on the economic crisis in Latvia today. If we return to the data of Table 2, and compare the effect of FDI seen in Table 3, we can say that GVA has increased 1.7 times in Section A, 1.9 times in Section C+D+E, 3.6 times in Section F, 2.7 times in Section G, 1.7 times in Section I, 3.6 times in Section J, and 2.7 times in Section K. We can conclude that the effect of FDI is less as we can expect in Sections A and F.

As we can see from Table 1 the growth of received FDI at various times derives two questions from the foreign investment stock policy:
1) which countries of the world have invested money in Latvia most of all;
2) what changes have happened in the donor countries in the time period from 2002 to 2007.

From 2002 to 2007 the investing countries which total investment in one year has exceeded more than LVL 10 million (Table 4). As we see from Table 4 the biggest investment stock (in million LVL) in 2007 was from Estonia – 507.2, Denmark – 242.2, Sweden – 206.1, Norway – 165.8, Netherlands -120.2, Russian Federation – 108.0, while in 2002 was from Sweden – 150.0, Denmark – 130.2, Germany

-128.0, Norway – 86.0 and the United States – 82.4. Practically all countries included in Table 4 have increased investment in Latvia from 2002 to 2007, except Germany which has decreased its investment and the United States which investment level has stayed the same.

II. Economic activity and FDI on regional level

In this section we try to answer the question "How FDI are received for the growth?" We use the regional level data to identify FDI effect on the growth.

Development economists distinguish three major stages of development. In the first stage, the economy specialises in the production of agricultural products and small-scale manufacturing. In the second stage, the economy shifts from small-scale production toward manufacturing. In the third stage, with increasing wealth the economy shifts away from manufacturing toward services (Acs, 2006).

Less developed regions should be focused on bringing foreign direct investment that would employ people leaving agriculture and self-employment. For developing regions it might need to strengthen the conditions for and improve the quality of entrepreneurial environment for major established firms, including the rule of law, labour market flexibility, infrastructure, financial market efficiency,

Table 4

Foreign investment stock in the company capital of enterprises registered in Latvia by investing country (thousand LVL)

	2002	**2003**	**2 2004**	**2005**	**2006**	**2007**
Total	*1 168 155*	*1 274 573*	*1 291 472*	*1 386 485*	*1 747 650*	*2 301 474*
Country (code)						
Austria (AT)	6 131	7 561	7 478	17 344	7 171	50 787
Switzerland (CH)	24 925	34 347	21 297	30 429	30 721	26 055
Germany (GE)	128 937	126 377	129 975	90 031	121 056	87 519
Denmark (DK)	130 211	118 838	117 780	160 447	179 605	242 210
Estonia (EE)	74 657	80 445	115 292	164 059	261 311	507 224
Finland (FI)	60 790	72 399	85 925	69 192	73 765	79 079
United Kingdom (GB)	53 161	41 720	42 165	39 792	71 772	87 979
Lithuania (LT)	4 749	7 760	8 001	33 924	55 848	71 900
Netherlands (NL)	41 029	64 130	70 495	70 667	94 975	120 242
Norway (NO)	86 035	83 834	91 802	82 318	128 168	165 786
New Zealand (NZ)	11 086	11 074	12 081	14 605	15 112	17 454
Russian Federation (RU)	66 915	80 938	86 345	95 008	90 971	108 021
Sweden (SE)	150 010	160 479	162 347	197 023	200 218	206 131
United States (US)	82 445	93 099	85 631	75 396	83 614	82 015

Source: Central Statistical Bureau of Latvia, http://data.csb.gov.lv/ 2008.10.30.

Table 5

GDP by Statistical Region (fixed prices, 2000; % of Latvia average)

	2004	**2006**
LATVIA	*LVL 3 214*	*LVL 4 883*
Riga region	183%	190%
Pieriga region	62%	67%
Vidzeme region	60%	54%
Kurzeme region	88%	69%
Zemgale region	52%	54%
Latgale region	46%	46%

Source: Central Statistical Bureau of Latvia, http://data.csb.gov.lv/ 2008.10.30.

and management skills. Most of these conditions are necessary to attract foreign direct investment that will provide employment, technology transfer, exports and tax revenues. Developed regions need to strengthen technology transfer, make early-stage funding available, and the higher education system needs to play an important role in the research and development, technology commercialisation and education.

Latvia belongs to the group of developing economies. According to Eurostat, in 2007 Latvia's GDP per capita is just 55% of the EU 27 (based on PPS), but on regional level we could observe that

most of the regions are underdeveloped except one – Riga (Table 5).

Apparent, outside Riga region the main task of foreign direct investment could be to employ people leaving agriculture and self-employment. FDI may improve productivity and make less competitive left the market.

Outside Riga region the largest numbers of enterprises per 1000 inhabitants are observed in agriculture (A), then in wholesale and retail trade (G), and/or in real estate, renting and business activities (K) (Table 6, upper section). During the period 2004-2007 the biggest increase in this number

of enterprises could be observed in agriculture (A), real estate, renting and business activities (K), and in construction (F), the exception is Vidzeme region where low growth of number of enterprises per 1000 inhabitants are in all economic activities (Table 6, lower section). In Riga region the biggest number of enterprises is seen in real estate, renting and business activities (K), then in wholesale and retail trade (G). In Riga region during the period 2004-2007 the biggest increase in the number of enterprises could be observed in real estate, renting and business activities (K), and in construction (F).

The data of accumulated FDI in enterprises stock capital shows substantial difference between regions.

In Riga region FDI are the most accumulated in transport, storage and communications (I), 38% of FDI in the region, so do in Latgale region with 62% of FDI in region (Table 7). In Zemgale region and Pierīga region the most investments are accumulated in manufacturing (D) 73% and 25% of FDI in region respectively. In Kurzeme region the most investments are accumulated in wholesale and retail trade (G) 47% of FDI in the region. It is inferable from Table 6 that in the mentioned economic activities of these regions relative number of enterprises keep growing fast, and this is against the proposition that FDI in developing economies leads concentration.

Table 6

The number of enterprises per 1000 of inhabitants by economic activity (NACE) and by region (in 2007 and changes from 2004)

		A	B	C	D	E	F	G	H	I	J	K	M	N	O	L	Total
2007	*LATVIA*	*15.1*	*0.1*	*0.1*	*3.6*	*0.1*	*2.8*	*10.5*	*1.2*	*2.5*	*0.5*	*11.4*	*0.5*	*2.5*	*4.6*	*0.1*	**55.6**
	Riga	1.5	0.0	0.0	4.8	0.1	4.7	17.3	1.9	3.9	1.0	21.7	0.8	2.5	5.8	0.1	**66.2**
	Pieriga	12.8	0.2	0.1	3.6	0.1	2.7	7.7	1.3	2.2	0.3	9.0	0.3	2.6	4.0	0.1	**47.1**
	Vidzeme	29.3	0.1	0.1	3.5	0.2	1.7	6.9	1.0	1.8	0.1	6.7	0.2	2.6	5.1	0.1	**59.4**
	Kurzeme	22.7	0.4	0.1	3.2	0.2	2.1	7.5	1.1	2.2	0.3	7.3	0.4	2.6	4.0	0.1	**54.1**
	Zemgale	22.9	0.0	0.1	2.4	0.1	1.7	6.7	0.7	2.0	0.2	5.6	0.4	2.2	4.6	0.1	**49.8**
	Latgale	23.3	0.1	0.1	2.3	0.1	1.0	8.0	0.6	1.4	0.1	4.5	0.3	2.1	3.0	0.1	**47.0**
changes from 2004 (diff.)	*LATVIA*	*2.4*	*0.0*	*-0.0*	*0.2*	*0.0*	*1.2*	*0.7*	*0.1*	*0.8*	*0.2*	*3.3*	*0.0*	*0.7*	*1.8*	*0.1*	**11.5**
	Riga	0.5	0.0	0.0	0.1	0.0	1.8	1.0	0.0	1.0	0.3	5.6	0.0	0.8	2.8	0.1	**14.1**
	Pieriga	2.0	0.0	0.0	0.3	-0.1	1.5	0.8	0.2	0.8	0.2	4.2	0.1	0.8	1.7	0.1	**12.9**
	Vidzeme	0.1	0.0	-0.1	-0.1	-0.1	0.7	0.3	0.3	0.4	-0.1	1.0	-0.2	0.6	1.4	0.1	**4.4**
	Kurzeme	6.6	0.1	0.1	0.4	0.1	1.1	0.9	0.2	0.6	0.1	1.9	0.1	0.7	1.7	0.1	**14.5**
	Zemgale	2.9	0.0	0.0	0.4	0.0	0.9	0.6	0.0	1.1	0.1	2.2	0.2	0.5	1.3	0.1	**10.3**
	Latgale	4.5	0.1	0.1	-0.1	0.0	0.4	0.2	0.1	0.5	0.0	1.5	-0.1	0.5	0.9	0.1	**8.8**

Source: Central Statistical Bureau of Latvia and authors' calculations

Table 7

Accumulated FDI in enterprises stock capital by economic activity and region (on Nov 24, 2008; % of total accumulated FDI in region)

	A	B	C	D	E	F	G	H	I	J	K	M	N	O
LATVIA	*4%*	*0%*	*1%*	*16%*	*0%*	*9%*	*19%*	*2%*	*33%*	*3%*	*13%*	*0%*	*0%*	*1%*
Riga region	0%	0%	0%	11%	1%	11%	18%	2%	38%	3%	15%	0%	0%	1%
Pieriga region	8%	0%	3%	25%	0%	10%	14%	6%	20%	0%	9%	2%	0%	2%
Vidzeme region	49%	0%	2%	44%	0%	0%	3%	1%	0%	0%	1%	0%	0%	0%
Kurzeme region	7%	0%	4%	16%	0%	1%	47%	0%	22%	0%	3%	0%	0%	0%
Zemgale region	8%	0%	5%	73%	0%	0%	9%	0%	1%	0%	4%	0%	0%	0%
Latgale region	0%	0%	3%	24%	0%	2%	4%	0%	62%	1%	3%	0%	0%	0%

Source: Lursoft www.lursoft.lv /24.11.2008.; authors' calculations

Exception is Vidzeme region where the most investments are accumulated in agriculture (A) and manufacturing (D) 49% and 44% of FDI in the region respectively (Table 7), but the number of enterprise growth is insignificant or even negative (Table 6). We can infer that only in Vidzeme FDI will provide technology transfer in existing enterprises, and wherewith could provide exports, so the region could improve long-term growth potential.

So, FDI effect on overall economic growth in Latvia is an open question because still it is not clear whether FDI boost economic activity or economic growth raise FDI stock. This question we will try to answer in the next section.

III. Some results of econometric modelling

The idea of this section is to show whether the relationship between macroeconomic indicators such as investment, export, import and GDP exist. The data are quarter series from Quarter 1 of 2000 to Quarter 2 of 2008. We computed the log of all these variables and denoted the log of exports-EXL, the log of imports – IML, the log of investment – INVL, and the log of gross domestic products – GDPL. Augmented Dickey-Fuller unit root test with trend and lag equal 2 on these variables gave such results for ADF statistic for EXL was -8.09, IML was -5.99, INVL was -6.52 and GDPL was -5.28. All these series are stationary time series with probability 99%, 95% and 90%.

We used pair wise Granger causality tests with two lags to determine causality between these four variables. The results of this test we can see in Table 8. From Table 8 we can conclude that there is a lagged feedback effect for all these variables except GDPL and INVL, as also EXL and INVL. As Granger causality test is very sensitive to the lag length we controlled our series causality also for the lag length 3 and the lag length 4. Our calculations showed that for the lag length 3 feedback effect stay for all variables except EXL which was not Granger cause for INVL, but for the lag length 4 feedback effects didn't stay in 4 situations. In this case the causality did not exist from IML to GDPL, from EXL to IML, and variables GDPL and EXL are independent.

Granger causality tests showed that there are causality between variables GDPL, EXL, IML and INVL. As causality existing with different lag length we wished to calculate the distributed-lag model in following form:

$$y_t = \alpha + \beta_0 x_t + \beta_1 x_{t-1} + \beta_2 x_{t-2} + \ldots + \beta_k x_{t-k} + u_t , \quad (1)$$

with a finite lag of k time periods. In equation (1) independent variable x_t was investment (INVL), dependent variable y_t was exports (EXPL) or imports (IML) or gross domestic products (GDPL) and u_t was disturbance. The distributed – lag models play a highly useful role in economics. We can see multipliers and calculate the mean lag in the

Table 8

The results of the pairwise Granger causality tests (series GDPL, IML, INVL and EXL)

Pairwise Granger Causality Tests

Sample: 2000:1 2008:2

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
GDPL does not Granger Cause INVL	32	1.46224	0.24949
INVL does not Granger Cause GDPL		5.43588	0.01038
IML does not Granger Cause INVL	32	5.67347	0.00877
INVL does not Granger Cause IML		6.67632	0.00441
EXL does not Granger Cause INVL	32	0.20739	0.81398
INVL does not Granger Cause EXL		13.6373	8.1E-05
IML does not Granger Cause GDPL	32	6.39906	0.00531
GDPL does not Granger Cause IML		10.4087	0.00045
EXL does not Granger Cause GDPL	32	6.04817	0.00675
GDPL does not Granger Cause EXL		13.8251	7.3E-05
EXL does not Granger Cause IML	32	9.81784	0.00062
IML does not Granger Cause EXL		30.5049	1.2E-07

distributed – lag models. The first slope coefficient β_0 is the short-run, or impact, multiplier, it shows the change in the mean value of y following a unit change in x in the same time period. The partial sums of coefficients are intermediate multipliers and the sum of all coefficients is long-run multiplier. From this model we can calculate the mean lag which measure the speed with which y responds to x.

We have calculated different lagged equations to show relationship between variables GDPL, INVL, EXL, and IML. We can accept only equations with one lag for all our variables. The results are the following:

Exports and Investment

$$EXL = 2.9970 + 0.4587 \text{ INVL } (-1) \qquad (2)$$

t-value   18.5506   22.0708
prob   0.0000   0.0000
R-squared=0.94   D-W=1.1456
Akaike info criterion= -2.8598
Schwarz criterion= -2.7691

Imports and Investment

$$IML = 1.9341 + 0.6334 \text{ INVL } (-1) \qquad (3)$$

t-value   7.5873   19.1862
prob   0.0000   0.0000
R-squared = 0.92   D-W=1.3454
Akaike info criterion= -1.9343
Schwarz criterion= -1.8436

GDP and Investment

$$GDPL = 4.0986 + 0.4267 \text{ INVL } (-1) \qquad (4)$$

t-value   39.6511   31.8718
prob   0.0000   0.0000
R-squared = 0.97   D-W=0.5489
Akaike info criterion= -3.7396
Schwarz criterion= -3.6489

Equations (2), (3) and (4) are not the distributed-lag models, and we cannot see investment impact on exports, imports and gross domestic products, as also we cannot calculate the speed with which exports, imports and gross domestic products respond to investment. If we compared received results with Revina (2004) paper results where the data series period was 1995-2003, then we can see that practically nothing has changed, only the slope coefficients before investment first lag have changed a little in equation exports and investment (was 0.4835), and

import and investment (was 0.6192). We think that these small changes show that investment effect in Latvia practically cannot be seen and we also think that these changes will be opposite than they are. The last equation (4) shows that a developed relationship between gross domestic products and investment exists that we cannot see in the results of Revina (2004) paper.

Conclusions

The analysis of situation with foreign investment stock, GDP and investment, export and investment, import and investment in Latvia showed that:
1) Although FDI from 2002-2007 have increased 7 times, FDI also are increased in the company capital of enterprises by kind of activity, then in gross value added by kind of activity we cannot see such effect. It shows that FDI are not so effective in Latvia case;
2) From regional level data it is not clear whether FDI in Latvia boost economic activity or economic growth raise FDI stock. We can infer that only in Vidzeme FDI will provide technology transfer in the existing enterprises, and wherewith could provide exports, so the region could improve long-term growth potential;
3) Econometric analysis showed that between GDP, export, import, and FDI Granger causality exists, except GDP, export is not the causality for FDI. The distributed-lagged models between these variables cannot be found. We think that it again shows small effectiveness of FDI in Latvia case.

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Kopsavilkums

Raksts ir turpinājums autoru iepriekšējo gadu pētījumiem. Raksta 1. sadaļā ir analizēta ĀTI dinamika laika posmā no 2002. -2007. gadam. Saņemtās ĀTI ir palielinājušās 7 reizes, tai pašā laikā ĀTI efekts nav tik izcils. Tāpat ĀTI liels efekts nav redzams kopējās pievienotās vērtības sadalījumā pa sektoriem, kur lauksaimniecībā, rūpniecībā un transportā ir redzams šīs vērtības kritums. 2. sadaļā analizētas ārvalstu tiešās investīcijas statistiskajos reģionos un investīciju saite ar uzņēmējdarbības aktivitāti kopumā. Izņemot Vidzemi, pārējos Latvijas reģionos starp ārvalstu tiešām investīcijām un ekonomikas aktivitāti nav novērojama tieša sakarība. Raksta 3. sadaļā veiktā ekonometriskā analīze parādīja, ka starp Latvijas ekonomikas rādītājiem kā IKP, ĀTI, eksportu un importu pastāv Grendžera cēlonība, izņemot IKP, kā arī eksports nav cēlonis ĀTI. Latvijas gadījumā nevar noteikt izplatītos-novēlošanas modeļus starp IKP, eksportu un importu atkarībā no ĀTI, kas varētu liecināt par ĀTI neefektivitāti.

Impact Assessment of the European Union Funds to Support Rural Population and Economy in Poland

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Abstract

The research comprises the use of state-level data to estimate econometric (simple regression) models that permitted to assess the role of the EU funds spending on the performance of agricultural sector and well-being of farm and rural population in Poland. The major conclusions drawn from this study disclose that supply of the EU funds to Poland over the period of 2000-2006 had positive and statistically significant impact on agricultural sector (global production and gross value added in agriculture, farm investments and labour productivity) and on farm population welfare (agricultural household gross disposable income, computer possession and education-related indicators). At least so far, there is no clear empirical evidence on the rural development linear impact generated by the EU agriculture and rural development support at a country level.
Key words: EU funds, rural economy, assessment, Poland.

Introduction

The development of rural areas continues to be the EU priority explained by the need to fight poverty, and the demand for increasing economic and social cohesion. Throughout Europe, agriculture is not considered simply as an industry but as a specific sector of the economy requiring specific policy consideration.

The EU policies are characterised by a pool of different tools and forms of transfer to support farmers and rural areas. Each policy measure produces outputs (direct effect of the policy), which influence processes (e.g., farm decision making) that result in outcomes (final effects of the policy, in terms of the variables policymakers wish to influence indirectly). Overall outcome of those policies might include strong, sustainable economic growth in rural areas and the improved wellbeing of rural population.

The paper is organised as follows. It begins with a short discussion on the importance of public spending for rural development. The next part includes the explanation on the methodology of the underlying study. The third section will give an overview of literature and the research already performed in the field of impact assessment. This is followed by presentation of agricultural and rural support being allocated to Poland. The fifth section summarises results of quantitative assessment of the EU funds impacts on rural economy and population. The last part will conclude research results.

Why public expenditures are important for rural economy?

Traditionally, rural areas in Poland have suffered from common economic problems such as high underemployment, aging population, low per capita income, shortage of infrastructure, inadequate public services (e.g., health and education) services. Hence, there are strong analytical reasons to believe that government involvement via public spending is one of the important variables determining rural growth and development.

Different rationales and preferences might provide justification for the government intervention and public budgetary outlays. Economists widely agree that government involvement is based on public goods (e.g., environmental benefits that would not be provided if left to the market) and market imperfections (e.g., externalities, incomplete information, bargaining power). The general role of developing countries in providing public goods and in coordinating market processes is emphasised among others by Joseph Stiglitz (1998).

Additionally, labour market distortions, high transaction costs, severe volatility and covariance of incomes, and the indivisibility of many rural investments (Binswanger H.P. & Deininger K., 1997), all imply that governments are justified in executing their policies devoted to the economic growth and development in rural areas.

Intervention can take on a variety of forms ranging from regulatory functions, fiscal incentives

(for example through subsidies) to direct government provisions. Providing and increasing flows of public funds to enhance the economy's capital stock (physical and human) have often been viewed as an effective economic development strategy, particularly for underdeveloped rural areas.

Equalising the distribution of income, stabilising farm incomes, achieving rural development, saving family farming, and making farmers more wealthy, all mentioned constitute a subset of agricultural policy's goals of any government (Wright B., 1995).

Research objective, material and methods

The general aim of this study is to determine the impacts of the EU funds inflows into Poland on agriculture and rural development at a country level.

The considered policy measures in this study are pre-accession PPHARE and SAPPARD as well as the Common Agricultural Policy (CAP) measures. The financial data on funding from the EU are derived from Poland's Ministry of Finance, the Ministry of Agriculture and Rural Development (MARD) and complemented with data from the European Commission. The data on agricultural, macroeconomic and demographical indicators are taken from the Central Statistical Office of Poland database and the Eurostat database.

The econometric analysis employs a data set for the period from 2000 to 2006. The time period is rather short for the identification of agricultural and rural development policy final effects or outcomes as they might take a long time to emerge. In a six-year period the impacts might not be directly observable due to long time-lags in the system between changing inputs and visible changes in outputs and outcomes. The author takes into account that impacts are also affected by other factors for instance by other polices, and that they can be not directly observable. In the study, the observable variables, from which an outcome may then be inferred, are used as a proxy.

Simple linear regression technique was used to analyse the impacts of the allocation of the EU resources on: (*i*) agricultural sector; (*ii*) standard of living of the farm working population, and (*iii*) rural development. Several classical regression models were estimated for a set of different dependent variables, such as, for example, gross value added in agriculture, investment outlays, labour inputs, agricultural productivity, household income, unemployment rate, and education.

The impact of public spending on the economic growth and development – literature review

There have been numerous analytical and empirical studies of the relationship between public expenditure and an economic growth and development (ex. Barro R.J., 1990; Devarajan S. et al., 1996; Agénor P.R., 2004; Ventelou & Bry X., 2006; Moreno-Dodson B., 2008).

Some of such studies have looked specifically at spending on agriculture. Some of them demonstrate positive growth and poverty reduction effects that is especially relevant to the least developing countries (Fan S. et. al., 2000; Bezemer D. & Headey D., 2006). Other studies have the opposite views on the government active role in the agricultural sector. For example, Torbjörn Jansson et al. (2008) who investigated the impacts of abolishing the CAP for the post-2013 EU financial perspective, concludes that this policy is an inefficient use of tax money, and by reallocating the CAP budget to the rest of the economy economic activity in Europe is stimulated.

The evidence on the outcome of public expenditure on the growth and development appears to be mixed or unclear. Nowadays, there is a wide-spread consensus that any aid is successful in promoting growth and reducing poverty only on certain conditions, and that there is no general positive relation between aid and growth (Boone P., 1996; World Bank, 1998; Hefeker C. & Michaelowa K., 2003). Marian Rizov (2004), for instance, gives evidence that the CAP support redistribution can significantly impact rural community development and household welfare, conditional on households' technology (opportunity costs) of contributing to development, their current levels of contribution, and the form of community development function.

Furthermore, the impact of public spending on the growth and development might depend on its source of financing (inflationary financing, taxes affecting economic behaviour, public borrowing, non-national funds, etc.) as well as on the methods used to assess this impact.

EU financial support for rural areas and farmers in Poland

The EU reforms of its CAP represent a shift from an emphasis on farm production to the rural economy, in effect a move from sectoral to geographic policies. The responsibility for shaping the content of those policies largely moves to the member states. To ensure that any member state can absorb the EU funds effectively and manage them properly, a well-functioning administrative structure must be put in place. In Poland, one of the key

Allocation of PHARE funding for Poland, 1990-2003

Years	Total	Agriculture & rural areas		Years	Total	Agriculture & rural areas	
	million EUR		%		million EUR		%
1990	165.631	100.0	60	1997	137.512	8.0	6
1991	191.951	17.0	9	1998	64.667	7.5	12
1992	214.995	18.0	8	1999	213.500	27.6	13
1993	222.474	30.0	13	2000	484.360	38.8	8
1994	195.339	2.5	1	2001	468.450	28.1	6
1995	152.130	13.0	9	2002	394.000	34.1	9
1996	224.008	8.0	4	2003	402.800	42.5	11
				1990-2003	**3531.817**	375.1	11

Source: author's research on the basis of Banski, 2002, and data from the Office of the Committee for European Integration in Poland

Allocation of SAPARD funding for Poland, 1990-2003

Years[1]	Amount of public funds (million euro)			
	Total	EU funds	%	National funds
2000	228.705	171.570	75.0	57.135
2001	233.409	175.057	75.0	58.352
2002	239.821	179.874	75.0	59.947
2003	243.877	182.908	75.0	60.969
2000-2003	**945.813**	**709.410**	**75.0**	236.403

Note: [1] SAPARD was budgeted until the end of 2006.

Source: author's research on the basis of MARD, 2006

players in this structure is the Ministry of Agriculture and Rural Development which is responsible for programming and management of the funds allocated to agricultural sector and rural areas via two paying agencies: the Agricultural Market Agency and the Agency for Restructuring and Modernisation of Agriculture.

As a member of the EU, Poland has gained the position of a net beneficiary in financial flows with the EU budget. Accumulative financial inflows since the first day of accession (as of the end of October 2008) have reached a total of EUR 25.96 billion of which 32.5% has been allocated for the CAP measures including direct payments, market measures and rural development (Ministry of Finance, 2008).

In addition, since the early 1990s Poland has been embraced by various kinds of pre-accession assistance including PHARE (Poland and Hungary Assistance for the Reconstruction of the Economy) and SAPARD (the Support for Pre-Accession

Measures for Agriculture and Rural Development) instruments.

PHARE was designated for the economy restructuring and privatisation, the promotion of exports, support for regional and institutional development, investment supporting but also for development of agriculture and rural areas. The total aid granted by the European Communities to Poland under PHARE in the years 1990-2003 amounted to EUR 3.5 billion of which 11% represented aid to agriculture (Table 1).

SAPARD was the key pre-accession instrument of supporting the modernisation of Polish agriculture and changes in rural areas with focus on the improvement of market and marketing efficiency of the agro-food sector as well as on the enhancement of business environment, including creation employment opportunities and agricultural multi-functionality. Of the total SAPARD amounts, 75% came from the EU funds, while the rest from

Table 3

Allocation of the CAP funding for Poland, 2004-2006 (million EUR in current prices)

Years	Total	EAGGF – Guidance	%	TRDI (EAGGF - Guarantee)	%
2004	1141.036	278.636	24.4	862.400	75.6
2005	1359.156	398.156	29.3	961.000	70.7
2006	1558.897	515.897	33.1	1043.000	66.9
2004-2006	**4059.089**	**1192.689**	**29.4**	**2866.400**	**70.6**

Source: author's research on the basis of Monitoring data system CAP-IDIM, European Commission, DG for Agriculture and Rural Development

national sources. In total, Poland received the EU funds amounting to EUR 709.4 million under the SAPARD 2000-2003 financial agreements (Table 2).

Over the years under this study, the EU spending on European agriculture and rural development was made through the European Agricultural Guidance and Guarantee Fund (EAGGF) with two sources of funding: guarantee and guidance sections. On May 1, 2004 Poland became a full member of the European Union. Like nine other new EU entrants, this country was qualified for the special rural development regime for the period of 2004-2006.

This regime was mainly based on a new Temporary Rural Development Instrument (TRDI), funded by the EAGGF Guarantee, to assist the so-called accompanying measures (i.e., early retirement, agro-environment, afforestation and compensatory payments for less favoured areas and areas subject to environmental constraint). Additional rural development measures were financed from the EAGGF Guidance. Table 3 shows the CAP related financial allocations to Poland broken down according to the sources of funding. The total amounts allocated in the period of 2000-2006 through the EAGGF are estimated at EUR 4.06 billion, out of which about EUR 2.9 billion (71%) were allocated for the TRDI.

Effects of the EU funds on agriculture and rural living standards in Poland – results of an econometric analysis and discussion

Following the logic of the theoretical argument about positive influence of public funds on the economic growth and development, this part of the study tries to find an answer to the question: Does Polish rural economy benefit (significantly) through the receipt of financial assistance from the European Union?

Simple linear models were applied to explain indicators of agricultural sector performance, indicators of the well-being of the farm working population, and indicators of rural development (dependent variables) as functions of amounts of the EU funds directed towards agriculture and rural areas (explanatory variable). Standard ordinary least square (OLS) regression of the individual socio-economic indicators upon public spending was performed. Goodness of fit of the models was measured using the Shapiro-Wilk test (for testing the normality of errors) and the Breusch-Godfrey test (for testing error autocorrelation) (Borkowski et al., 2004).

Simple linear regression model used in this research is given below.

$$Y = b_0 + b_1 X \qquad \text{(Equation 1)}$$

Where b_0, and b_1 represent regression coefficients or parameters.

Table 4 presents a set of variables for the period of 2000-2006 used in estimation of the models together with the definitions of those variables.

Fifteen models were tested in the study. Finally, only those that were statistically significant and valid were selected and presented in Table 5.

In the years 2000-2006, gross output, gross value added, investment spending and labour productivity in Polish agriculture were positively related to financial assistance from the EU funding. The early impact of an inflow of the EU funds on factors of agricultural production (labour, tractors) is unclear. Among variables describing well-being of farmers and their families, gross disposable income of the agricultural households, the proportion of farm household population of the working age who possess at least vocational education as well as the rate of the farm households having computers appeared to be positively influenced by the EU funds. The

Table 4

Definition of dependent and independent variables

Symbols	Description
1. Dependent variables (Y)	
	Agricultural sector performance variables:
GOA	Gross output in agriculture (PLN)
GVAA	Gross value added in agriculture (PLN)
IA	Investments in agriculture (PLN)
FL	Farm labour inputs (AWU)
LPR	Labour productivity in agriculture (GVAA/AWU)
TR	Number of tractors per 100 ha UAA
	Well-being of the farm working population variables:
GDIFH	Gross disposable income of the agricultural households sector (PLN)
PFPVE	Percentage of farm household population of the working age who possess at least vocational education
PCAR	Percentage of farm households that have private car
PPC	Percentage of farm households that possess computer
	Rural development variables:
GDIRH	Gross disposable income of the rural households sector (PLN)
URA	Unemployment rate in the rural areas
DLRA	Average duration of life of rural residents (years)
DSRA	Dwelling stocks in the rural areas (number of dwellings)
PRPVE	Percentage of rural household population of the working age who possess at least vocational education
2. Independent variable (X)	
EUF	Amount of the EU funds allocated to agricultural sector and rural areas in 2000-2006 (PLN)[1]

Note: [1] Aggregate amount of funds (SAPARD, PHARE and CAP) expressed in EUR were being converted into national currency (PLN) using annual average exchange rates published by the National Bank of Poland.
Source: made by the author

Table 5

Statistically significant regression results

Model	Coefficient b_1	Coefficient of determination, R^2
$GOA = b_0 + b_1 EUF_t$	1.8372	0.7389
$GVAA = b_0 + b_1 EUF_t$	1.6039	0.9493
$IA = b_0 + b_1 EUF_t$	0.1537	0.8806
$LPR = b_0 + b_1 EUF_t$	0.0009	0.9755
$GDIFH = b_0 + b_1 EUF_t$	1.7715	0.9674
$PFPVE = b_0 + b_1 EUF_t$	0.0011	0.8521
$PPC = b_0 + b_1 EUF_t$	0.0040	0.6727
$PRPVE = b_0 + b_1 EUF_t$	0.0011	0.8128

Note: Regression coefficients statistically significant at 0.05 level
Source: author's research

Table 6

Pearson correlation coefficients for the set of variables being explained in regression models

	GVAA	*IA*	*FL*	*LPR*	*TR*
GVAA	1				
IA	0.771**	1			
FL	-0.388	-0.430	1		
LPR	0.956***	0.789**	-0.640	1	
TR	0.607	0.671*	-0.893***	0.789**	1
	GDIFH	*PFPVE*	*GOA*	*PCAR*	*PPC*
GDIFH	1				
PFPVE	0.875***	1			
GOA	0.804**	0.754**	1		
PCAR	0.851**	0.797**	0.464	1	
PPC	0.875***	0.885***	0.555	0.930***	1
	GDIRH	*URA*	*DLRA*	*DSRA*	*PRPVE*
GDIRH	1				
URA	-0.667	1			
DLRA	0.799**	-0.204	1		
DSRA	0.944***	-0.527	0.762**	1	
PRPVE	0.986***	-0.677*	0.748*	0.964***	1

Note: * Significant at 0.05 level; ** Significant at 0.025 level; *** Significant at 0.01 level (one tailed probabilities).

Source: author's research

results for disposable income are obvious taking into consideration that many Polish farmers depend on the CAP funding for a livelihood. The EU funds have not been found to be a significant explanatory variable in farm household car ownership.

In the case of rural development variables, only education of rural population appears significant in the regression for the EU funds. Employed models linking those funds to the gross disposable income of rural households, to rural unemployment rate, to the length of life, and to housing stocks in the rural areas all gave invalid or insignificant results.

As estimated regression equations have shown the EU funds effects on individual variables, in order to better illustrate the results, correlation coefficients were calculated for pairs of the indicators previously used as explained variables. Most of the coefficients are statistically significant at the 95% confidence level (using one-tail test) or better (Table 6).

There was a strong positive correlation between labour productivity and GVA in agriculture as well as between GVA and capital accumulation in agriculture. Productivity was also positively correlated with investments and with tractor use. There was a significant but negative correlation between tractor use and labour inputs, but tractor use was positively correlated with labour productivity. As regards variables describing standard of living of the farm working population, there was a strong to high direct correlation between the selected pairs except correlation between gross output in agricultural sector and equipment of farm households with durable goods. As concerns rural development variables, only the unemployment rate was not found to be significantly correlated with other indicators, excluding moderate negative correlation between this rate and the proportion of rural population with vocational education.

The very short-run influence of the EU funding for agriculture and rural development on standard of living of rural inhabitants in Poland appeared to be insignificant, whereas the opposite was found for farm population. One possible explanation for this discrepancy is that the EU rural development policy in the analysed period was biased towards farm producers with its typical aims related to agricultural holdings conditions (improvement) and farmers well-being (ensuring fair and stable incomes). Another explanation of this result may be found in the existence of nonlinear relationships between the EU contributions and rural development indicators.

Summary, conclusions and recommendations

To conclude, the impact analysis shows that economic effects of PHARE, SAPARD and CAP funds during the period of 2000-2006 were positive and significant, especially in the case of generation of the gross agricultural output and the gross value added in the agricultural sector as well as of the farm household gross disposable income. Funding from the EU also had direct influence on farm labour productivity and agricultural investments enhancing this productivity, so it contributes to long-term agricultural growth. However, both farm workforce and unemployment rate in Polish rural areas seem not to be affected by those funds. In other words, their effect on well-being improvement through non-farm employment generation is unimportant in short term.

Understanding those results remains essential from a policy perspective. Some methods for measuring direct and indirect effects of the CAP funds on rural labour markets could lead to unwarranted conclusions that additional spending on rural development is ineffective way of unemployment alleviation. Even so, creating job-opportunities available to rural residents should not be neglected in rural development policy and requires long-term involvement by the public sector (ex. via provision of public transport, training/education and information available at local and sub-regional levels).

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Static Effects of Application of Single Farm Payment and Modulation on Subsidy Levels in Estonian Agricultural Sector

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Abstract

Decoupling direct payments and introducing single farm payment caused a structural break in the EU CAP farm subsidies system due to the removal of the link between production and payments. The effects of decoupling depend on the chosen single farm payment application model, the composition of previous coupled direct payments, and the structure of farming sector. In Estonia the single farm payment shall be implemented at latest in 2014. In addition, modulation shall be applied in Estonia in 2012, shifting part of the CAP Pillar I payments to Pillar II. The current paper demonstrates the magnitude of static effects of application of the single farm payment and modulation in different farm types and size groups. The analysis reveals that the major effects shall occur in dairy sector that would lose 28.5% of their direct payments, the main contributor being large farms that have more than 1000 t of dairy quota and 1249 ha of arable land on average. In arable and landscape farming sectors the effects would be positive, potentially inducing increase in land prices. There would also be a modest positive effect on subsidy level in cattle sector. However, as a result the dependency on direct payments would increase in arable, landscape and cattle sectors, possibly hampering the motivation to change farming systems as a result of change in subsidy system.
Key words: decoupling, single farm payment, modulation, distribution of direct payments.

Introduction

The need for more market oriented farming sector in the EU is widely acknowledged. Agricultural economists have proposed decoupling of subsidies from agricultural production for many decades in order to remove linkage between farmers' production decisions and subsidies. A comprehensive review of different decoupling proposals since the 1960s has been given by Beard and Swinbank (2001) who suggested that farming sector should receive compensatory payments not linked to the current farming activities if the levels of price and income support of the CAP should be drastically reduced or eliminated.

Direct payments (DP) were rooted by the MacSharry reform of 1992 to compensate farmers for decrease of price supports. The CAP reform of 2003 made a step further and decoupled DP from production, in order to achieve the goal of more market oriented agriculture. However, decoupled DP are not a uniform concept, nor is unified their application in the EU member states. Decoupled DP in the form of single farm payments (SFP) can be based on historical payment levels, be flat rate area payments equal for all farmers in a certain region, or be combination of both. The EU-15 member states applied SFP by 2006, the EU-10 member states applied single area payments in 2004 and would have to apply SFP by 2011. In the CAP "Health Check" process in 2007-2008 the European Commission underlined the need for "more flat rate" decoupled payments as payments based on historical references are more and more difficult to justify (Commission of the …, 2007). Also, the concept of progressive modulation was proposed, however, not agreed upon, and as a compromise only the amounts exceeding EUR 300 000 shall be modulated by extra 4% (Commission of the ..., 2008).

According to the CAP "Health Check" proposal Estonia and other EU-10 member states should apply modulation in 2012 and SFP in 2014 at latest. Therefore the aim of this paper is to demonstrate the static effects of applying both, SFP and modulation, on DP levels, dependence and distribution in Estonian agricultural sector. At first, a brief overview is given about few findings of previous researches. The second chapter describes the data used and methods applied. Also, the effects of SFP application with and without modulation on distribution of DP together with the changes in dependence on DP are discussed. The third chapter derives some conclusions.

Background

After the CAP reform of 2003 the effects of decoupling of DP on agriculture have been thoroughly researched from various perspectives. For example,

Breen et al (2005) found that while modelling exercise showed significant impetus for change within dairy, arable and cattle sectors in Ireland, the survey indicated that farmers intend to continue with the same production patterns post decoupling. There is inertia in the sector since farmers may not consider the payment fully decoupled as it is tied to the primary production factor, land.

Matthews et al (2006) discuss that decoupled payments provide a means to increase the financial adaptive capacity of farming systems in the short term and indicate an increasing need for land-based business diversification. Schmid and Sinabell (2007) found that by lowering production incentives, decoupled payments will reduce outputs of agricultural commodities, make it profitable to use less environmentally relevant inputs, and induce more farmers to adopt extensive farming practices.

Happe et al (2008) investigated the extent to which differing farm structures determine the impact of policy change and subsequent structural change in two study areas in Germany. They found that redistribution of payments caused by the (flat rate) single area payment scheme application would have a minor effect on the distribution of farm size classes. Depending on specialisation some farms receive fewer payments under the single area payment scheme, which induces a few farms to leave the sector. The magnitude of the effects would be larger in farm size classes above 50 ha. Furthermore, the decoupled single area payment transfers into higher rental rates for grassland. After all, decoupled direct payments have no historical precedent and they induce a structural break in the system.

Marchand et al (2008) observed that in Belgium specialised and mixed arable farms would receive more payment entitlements due to their arable area, at the expense of mainly beef cattle farms. A farm could turn around this negative situation by changing crop and/or cattle husbandry. Dairy farms with no or less other cattle experience the slightest influence but if differences between farm sizes of dairy sector are considered, the income of big farms declines the most. They suggest that income losses in the particular sub-sectors should be considered and compared with the advantages of a flat rate DP for the entire agricultural sector.

Data and methods

Considering the variation in the SFP application methods and the results of previous researches one can assume that the effects of decoupling depend on the chosen application model (historical or regional), the previous distribution of coupled DP and farm specialisation and structures in the study region.

In this paper it is assumed that SFP is implemented in Estonia via regional model, and the whole country is considered as a single region with equal area payment rate for each farm and hectare. Measurement of the effects is based on the hypothesis that both, SFP and modulation were implemented in 2007 as the analysis is based on 2007 DP population data of individual beneficiaries[1]. The main advantage of DP data is that it is not based on sample, and therefore it gives more adequate picture of farming structures and magnitude of effects within structures, including also non-professional agricultural producers. As the database includes information about land usage (allocation of different crops and grassland), number of animals and subsequent amounts of direct payments, the main disadvantage is the lack of economic data (individual costs and revenues).

However, based on land allocation between crops and number of animals a standard gross margin (SGM) was calculated for each farm using FADN SGM coefficients in order to estimate the economic size of farms and the importance of direct payments in their SGM. The SGM is the difference between standard value of production (including DP) and the standard value of certain direct costs (Commission of …, 1978). One should be aware that SGM coefficients are the same for all farms, i.e., they do not take into account possible scale effects in different farms or farm groups and size groups within those. The SGM calculations were made using SGM coefficients of 2004 (Rural Economy Research Centre, 2008).

The population of farms was divided in four main types and size classes within types:
1) Dairy – farms that received dairy premium; size classes <100 t, 100-1000 t and >1000 t are based on owned milk quota amounts;
2) Arable – farms that received coupled arable crops premium and did not receive livestock related premiums; size classes <100 ha, 100-500 ha and >500 ha are based on area;
3) Cattle – farms that received livestock related premiums but did not receive dairy premium; size classes <20 ha, 20-100 ha and >100 ha are based on area;
4) Landscape[2] – farms that did not receive coupled arable crops premium and premiums related to livestock; size classes <20 ha and >20 ha are based on area.

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[1] Data was provided by Estonian Agricultural Registers and Information Board (paying agency)

[2] These farms are named "landscape farms" because they did not receive any coupled DP and became eligible for single area payment if they maintained their land on good agricultural and environmental conditions.

There were 18 005 farms that received DP in Estonia in 2007 and they used 832,5 thousand hectares of agricultural land in total (Table 1). In this study, the area eligible for single area payment was considered as an agricultural area both, on farm and aggregate levels[3]. The amount of DP was EUR 84.5 million in 2007.

More than half of the DP was paid to dairy farms that account for 7.9% of farms and use 40.7% of agricultural area. The average agricultural area of dairy farms was 239.5 ha. The number of arable farms and other livestock farms is almost the same, both farm types account for approximately 22% of all farms. However, the average area of arable farms was 74.4 ha, while the average cattle farm had 28.7 ha of agricultural area. Landscape farms made 44.5% of farming population, while they covered 10.6% of agricultural area and received 5.1% of all direct payments. Farm size structures are skewed in all farm types – in dairy sector 58.8% of all farms manage 11.9% of agricultural land, while 11.7% of the largest farms manage 60.8% of agricultural land. Similar tendency is visible in all farm types. There were 671 farms that did not have eligible land for single area payment, and therefore they would not be eligible for single farm payment as it is tied to the land usage. There can be several reasons for that – they might have less than 1 ha of agricultural area, they may have quit farming and receive decoupled historical DP, or they did not fulfil the eligibility criteria for single are payment.

The estimation of effects of SFP implementation is based on the comparison of 2007 actual individual DP amounts and calculated hypothetical SFP amounts. Hypothetical SFP payment rate was found when total amount of DP was divided by total eligible area for single area payment. Individual SFP amounts were found by multiplying the SFP rate

Table 1

The main characteristics of farm types and size classes

Farm type	Number of farms	% of farms	Agricultural area, thousand ha	% of area	Average agricultural area, ha	Amount of DP, million EUR	% of DP
Dairy*	**1 414**	**7.9%**	**338.6**	**40.7%**	**239.5**	**44.0**	**52.1%**
… quota <100 t	831	58.8%	40.3	11.9%	48.5	4.0	9.0%
… quota 100-1000 t	417	29.5%	92.4	27.3%	221.5	10.6	24.0%
… quota > 1000 t	166	11.7%	205.9	60.8%	1 248.8	29.4	66.8%
Arable*	**3 909**	**21.7%**	**290.8**	**34.9%**	**74.4**	**25.7**	**30.4%**
… area <100 ha	3 268	83.6%	66.5	22.9%	20.3	5.3	20.7%
… area 100-500 ha	512	13.1%	109.8	37.8%	214.5	9.9	38.4%
… area >100 ha	129	3.3%	114.5	39.4%	887.7	10.5	40.9%
Cattle*	**3 994**	**22.2%**	**114.7**	**13.8%**	**28.7**	**10.0**	**11.8%**
… area <20 ha	2 710	67.9%	23.8	20.8%	8.8	2.1	21.5%
… area 20-100 ha	1 077	27.0%	42.8	37.3%	39.7	3.7	37.2%
… area >100 ha	207	5.2%	48.1	42.0%	232.6	4.1	41.4%
Landscape*	**8 017**	**44.5%**	**88.3**	**10.6%**	**11.0**	**4.3**	**5.1%**
… area <20 ha	7 171	89.4%	45.3	51.3%	6.3	2.2	50.9%
… area >20 ha	846	10.6%	43.0	48.7%	50.8	2.1	49.1%
Area =0ha*	**671**	**3.7%**	**-**	**-**	**-**	**0.6**	**0.7%**
Total	**18 005**	**100.0%**	**832.5**	**100.0%**	**46.2**	**84.5**	**100.0%**

* Respective shares are given as percentages of total figures

Source: author's calculations based on the DP data

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[3] According to Statistics Estonia, the agricultural area in 2007 was 823,3 thousand ha. As the difference between the eligible area for single area payment and agricultural area in national statistics is 1.1%, the first can be considered as a fair proxy for the latter.

by individual eligible area for single area payment. In order to estimate the effect of modulation, the hypothetical individual SFP amounts were modulated as follows: amounts less or equal to EUR 5000 were not modulated, for the amounts exceeding EUR 5000 the modulation rate was 10%, while for the amounts exceeding EUR 300 000 the modulation rate was 14% (Commission of the …, 2008). The individual results were aggregated for farm types and size classes.

Farmers' reliance on payments as a source of income grows with the increase of DP (Breen et al, 2005). If redistribution of DP occurs, there would be changes also in farmers' dependence on DP. In order to estimate respective changes a dependence on DP ratio was calculated dividing DP by SGM (SGM includes DP). In order to find dependence on SFP (with modulation) SFP was divided by (SGM-DP+SFP).

Results and discussion

The static results indicate that hypothetical single farm payment application in 2007 would bring about redistribution of DP between farms of different type and size (Table 2). The subsidy level in dairy sector would decrease by 21.9%, while in arable and cattle

sectors the average subsidy levels would increase by 14.8% and 16.5% respectively. Landscape farms whose main activity is maintaining their land on good agricultural and environmental condition would face 106.9% increase in their subsidy levels. In total EUR 10 million would be redistributed between farms, accounting for approximately 10% of DP.

In dairy sector the SFP rate of farms that have less than 100 t of milk quota would be 3.4% higher than the actual average DP rate. DP level of dairy farms that have milk quota between 100-1000 t would decrease by 11.2% and dairy farms who own more than 1000 t of milk quota would lose 28.8% of DP as a result of SFP application. The total amount of lost DP in dairy farms of more than 1000 t of milk quota would be EUR 8.5 million that accounts for 85% of redistributed DP. EUR 4.6 million out of redistributed EUR 10 million would be distributed between landscape farms and EUR 3.8 million between the arable farms.

Modulation of DP would affect farmers who manage more than 49 ha of arable land. Considering the effects of both, single farm payment and modulation, the dairy sector would have lost 28.5% of direct payments in 2007. Arable sector would gain 6.9% compared to the actual DP levels of 2007. The

Table 2

The effects of single farm payment and modulation on direct payments level

Farm type	Average DP rate, EUR /ha	Difference between DP and SFP , million EUR	Difference between DP and SFP ,%	Average modulation, % of SFP	Net effect of SFP and modulation on DP rate, %
Dairy	**130.0**	**-9.6**	**-21.9%**	**8.5%**	**-28.5%**
… quota <100 t	98.2	0.1	3.4%	3.5%	-0.3%
… quota 100-1000 t	114.4	-1.1	-11.2%	7.8%	-18.2%
… quota > 1000 t	142.7	-8.5	-28.8%	9.9%	-35.8%
Arable	**88.5**	**3.8**	**14.8%**	**6.9%**	**6.9%**
… area <100 ha	80.2	1.4	26.6%	1.1%	25.2%
… area 100-500 ha	89.8	1.3	13.1%	7.7%	4.3%
… area >100 ha	91.9	1.1	10.4%	9.4%	0.0%
Cattle	**87.2**	**1.6**	**16.5%**	**3.8%**	**12.1%**
… area <20 ha	90.2	0.3	12.6%	0.0%	12.6%
… area 20-100 ha	86.9	0.6	16.9%	1.2%	15.4%
… area >100 ha	86.0	0.7	18.1%	7.9%	8.8%
Landscape	**49.1**	**4.6**	**106.9%**	**1.6%**	**103.5%**
… area <20 ha	48.7	2.4	108.6%	0.0%	108.6%
… area >20 ha	49.5	2.2	105.1%	3.3%	98.3%
Area =0ha	**-**	**-0.6**	**-**	**-**	**-**
Total	**101.5**	**0.0**	**0.0%**	**6.6%**	**-6.6%**

Source: author's calculations based on the DP data

Table 3

Changes in dependence on subsidies ratio after application of SFP and modulation

Farm type	Standard gross margin, EUR/ha	Dependence on (DP)	Dependence on SFP (with modulation)
Dairy	**339,5**	**38.3%**	**30.7%**
… quota <100 t	267,4	36.7%	36.7%
… quota 100-1000 t	309,7	36.9%	32.4%
… quota > 1000 t	367,1	38.9%	29.0%
Arable	**192,5**	**45,9%**	**47,6%**
… area <100 ha	185,8	43,2%	48,7%
… area 100-500 ha	188,6	47,6%	48,7%
… area >100 ha	200,1	45,9%	45,9%
Cattle	**194,4**	**44,8%**	**47,7%**
… area <20 ha	256,0	35,2%	38,0%
… area 20-100 ha	188,3	46,1%	49,7%
… area >100 ha	169,3	50,8%	52,9%
Landscape	**164,6**	**29,8%**	**46,4%**
… area <20 ha	155,6	31,3%	48,7%
… area >20 ha	174,1	28,4%	44,1%
Total	**250,1**	**40,6%**	**39,0%**

Source: author's calculations based on the DP data and SGM coefficients

additional negative effects of modulation in cattle and landscape sectors are moderate. In cattle sector the effective modulation rate is 3.8% and in landscape farming sector 1.6%. The total modulated amount would have been EUR 6.7 million that accounts for 6.6% of DP.

In 2007 the SGM per ha was the highest (339.5 EUR/ha) in dairy sector (Table 3). It appears that the farm size has positive effect on SGM/ha in all farm types excluding cattle farms. At the same time one can notice that in dairy and cattle farms a farm size has slightly positive effect also on dependence on the DP ratio. In smaller dairy farms group the dependency ratio was 36.7% and in larger size group 38.9%. If SFP and modulation were applied in 2007, the dependence on subsidies would have decreased in size classes 100-1000 t and >1000 t. The dependency ratio in latter would be 29.0% which is the smallest in all farm types and size groups after application of SFP and modulation.

Dependency ratio was the highest (45.9%) in arable sector. Within the sector the highest dependency ratio was in the (middle) size group 100-500 ha. The SFP and modulation application would have minor positive effect on dependency ratio in this sector, increasing the dependency of the whole sector by 1.7 percentage points. In cattle sector the dependency ratio is positively related to farm size, being 35.2%

in farms that have <20 ha and 50.8% in farms that have >100 ha of arable land. The overall dependence on subsidies would increase in cattle sector by 2.9 percentage points if SFP and modulation was applied. In 2007 the dependence on subsidies was the lowest in landscape farms. However, as the payment level would increase the most in landscape farms the dependence on subsidies would increase the most (by 16.6 percentage points) also in this sector practically equalising the dependency ratios in arable, cattle and landscape sectors.

Considering the static effects presented above it is likely that the implementation of SFP and modulation would have the largest effect on Estonian dairy sector. Dairy farms would lose DP worth of EUR 9.6 million, in addition EUR 0.8 million would be modulated from DP of dairy sector. One can also assume that negative effects induce higher impetus for change, i.e., due to loss of 28.5% of DP the structural changes in dairy sector could be larger than in other sectors. However, there could be inertia also in Estonian dairy sector as Suggested by Breen et al (2005) in Irish context. As major decoupling of DP was implemented in Estonia only in 2007, the farmers' perception of the principle of decoupled payments could be vague and the effects could occur after several years.

The SFP would be applied in Estonia in 2014. In 2007-2014 more than 80% of DP in Estonia are

decoupled from production, therefore the adjustment process with decoupled payments is relatively long ,and the actual effects of SFP application could be smoother. As many dairy farms have invested in new barns and milking and cooling equipment in 2001-2008, there might be sunk costs in Estonian dairy sector making it more difficult to change the farm specialisation. Increase of DP level will be the largest in arable and landscape sectors, which manage 45.5% of arable land. Therefore it is reasonable to assume the increase in arable and grassland prices after SFP application. This once again increases pressure on incomes of dairy sector.

Conclusions

Due to the composition of DP, the structure of Estonian agricultural sector and the nature of regional flat rate SFP the implementation of SFP will have largest (negative) effect on Estonian Dairy sector which would have lost EUR 10.4 million of DP if SFP and modulation was applied in 2007. The positive redistributive effects are divided between other sectors – mainly arable and landscape farms.

One has to agree with the suggestion of Marchand et al (2008) that income losses in sub-sectors should be considered and compared with the advantages of a flat rate SFP for the entire agricultural sector. If dependence on subsidies is considered as a proxy for likelihood to change for farmers, and the nature of decoupled payments is not considered, it follows that likelihood to change will be higher only in dairy sector and decreases a little in arable and cattle sectors.

The dynamic effects of decoupling, flat rate SFP and modulation should be analysed in modelling framework. However, the chosen modelling tool should allow for differentiation between farm types and size groups as they cause significant variance in the magnitude of change of DP levels.

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Health – Check of Common Agricultural Policy and Polish Government Position on the Proposed Direct and Farm Payments

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Abstract

In the frames of reforms of the Common Agricultural Policy negotiation in 2003 which were held in Luxembourg, besides declarations on modifications of the existing instruments of agricultural support, also alignment policy of estimation of the whole system functioning mechanisms was discussed (Health – Check). The debate on the CAP reforms started on November 20, 2007 by publication of the European Commission announcement preparations to estimation of the CAP reforms functioning. After several months of consultations, basing on the European Council Conclusion, on May 20, 2008 the European Commission published a legislative package which has become a basis of intensive works at forum of the European Union Council. Nowadays the negotiation process is entering into the deciding sphere where solutions will bring important changes in the CAP in 2009.

Polish government decided to accept the proposed solution in some spheres, while in others to pay attention on their negative impact for the new EU member states. The Ministry of Agriculture of Poland proposed also the methods for improvement the CAP reforms, and proposals to be taken under consideration during the previous negotiations.

Key words: Common Agricultural Policy, Health-Check, rural areas, Polish agriculture.

Introduction

The form of the Common Agricultural Policy, as set forth until 2013, is a result of decisions made in Luxembourg in 2003, which is a year prior to Poland's accession to the European Union. Since then, several reforms of this policy have been made, however, fragmentary in character and concerning individual agricultural markets (sugar - 2006, fruit and vegetables - 2007, wine -2007). Moreover, according to the European Committee's guidelines, the review of the Common Agricultural Policy (Health-Check), which began in 2007, is not aimed at bringing about a profound reform and helps only adjust instruments of the existing CAP, without interfering with the structure itself, i.e., without any substantial modifications of national envelopes or amounts of support in individual areas. This review revealed a necessity of some basic adjustments of the CAP to long-term challenges, opening, at the same time, a debate with a more fundamental meaning, which refers to the future of the Common Agricultural Policy after 2013. It can be assumed that this debate was initiated by the French Presidency during the informal meeting of the EU Ministers for Agriculture and Fishery on 21-23 September in Annecy (France). The nearest years will bring new stages of the discussion about the future of the Common Agricultural Policy. It needs to be remembered that these decisions will be linked to a debate on the form of the Community's budget, including the future of other EU policies. An equally important factor is the perspective of a new agreement within the WTO, which may liberalise substantially the conditions of agricultural trade as well as rules of agricultural policy building.

The aim of this article is to present Poland's view on the two key European Commission's proposals concerning: the form of the direct payments until 2013, and the payment modulation and limits for farmsteads. This article was written on the basis of internal materials of the Ministry of Agriculture and own remarks of the author, who performed as an expert during some meetings at the Ministry of Agriculture regarding the reform of the EU Common Agricultural Policy.

Results and Discussion
Direct payments

When formulating the view on the shape of CAP after 2013, one needs to identify some desired and achievable objectives of the Community, with adherence to the principle of subsidiarity (the European value added). It is also important to take into account the specific conditions and problems in Poland, the agricultural sector and rural areas make for a significant part of the EU-27 agriculture

and rural areas. This refers to both consideration of national objectives of agricultural policy and a potential contribution of Poland to achievement of the Community objectives of this policy. Moreover, an opinion in this matter should account for the previous experience in implementation of the CAP in Poland as well as an assessment of a number of factors in functioning of agriculture and rural areas in Poland and the EU.

In particular, the following must be considered:
— a positive influence of individual elements of CAP (market intervention, direct payments, other mechanisms within the single market area) on development of the agro-food stuffs sector and rural areas, including decreasing the development distance between agriculture in Poland and the EU-15 and between urban and rural areas in Poland. This is indicated by numerous scientific and statistical studies as well as by an analysis of basic economic indicators (e.g., evolution of income levels in agriculture and rural areas, including income disparity, investment intensity and modernisation pace, structural changes in production sector, trade exchange results, food diversity, quality and safety, interactions between agriculture, rural areas and the natural environment). A general, positive assessment of the CAP does not represent the lack of a critical assessment of its individual elements or a necessity of changes, even those fundamental ones.
— striving for equal competition chances in agricultural sector in Poland towards other member states. Considering the readiness of

many EU member states to continue the high level of support for their agricultural sector, it will be possible only within the framework of the Community mechanism of financing the EU agricultural policy (financial solidarity). A guarantee of proper functioning of the EU single market is an important factor (European value added) for continuing the solidarity (Community) character of the CAP financing mechanism. The implementation of this strive in the future requires inter alia changes in criteria for division of allocations for direct payments among the member states.
— validity of maintenance of the evolutionary path of changes in the CAP for its adaptation to new demands and conditions (their dimension is becoming more and more global, instead of European) through elimination of those instruments, which have lost a reason for existence, and introduction of new ones, which improve effectiveness of this policy. In this regard simplification of the CAP mechanisms should be continued.

One of key elements of changes in the CAP is the proposed form of direct payments. A diagram of the present system is shown in Figure 1.

As far as the currently used payment models are concerned, they can be classified as follows:

(A) Regional – a regional financial envelope is divided by area entitled in the region, (a unified rate per hectare in the specific region/country)

(B) Historical – the sum of direct payment is equal to the average sum of payments for years 2000
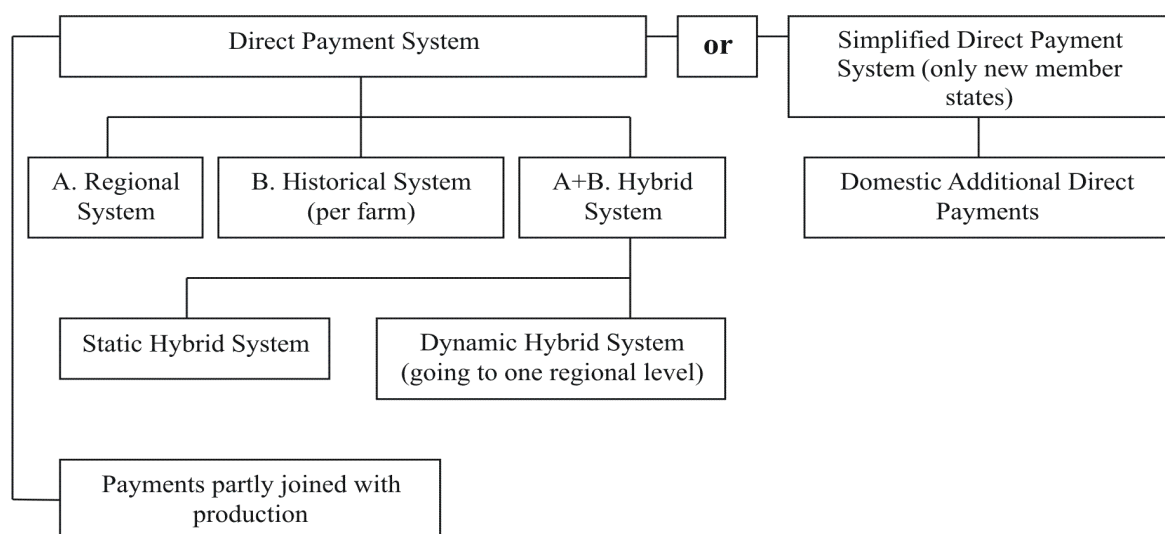
Source: author's research

Figure 1. **Models of payments after the reform of 2003**

Table 1

Examples of payments in some EU States

	Model	Payments: separate/linked
France	Historical SPS	10 separate payments related to production
Germany	Hybrid dynamic SPS	2 payments related to production (hop and tobacco)
Great Britain	Scotland – historical SPS England – hybrid dynamic SPS Northern Ireland – SPS hybrid static Wales – historical SPS	Scotland - 10% for the beef sector (Art. 69)
Poland	SAPS	5 types of supplementary payments (national) 4 separate EU payments

Source: Ministry of Agriculture, 2008

– 2002 (large differences in rates for a hectare among individual farmsteads),

(A + B) Mixed – a part of payments received by a farmer are those made on a historical base (individual) and the remaining part is the regional part.

In the EU States there is a diversification of direct payments, examples of which are presented in Table 1.

The European Committee proposes inter alia equalisation of the payment rates among the Member States and regions by making it possible for those States, which use the historical model of the SPS system, to move to implement the regional model. The Member States will be able to use the so called hybrid model (static or dynamic) of SPS, however, they will also be able to continue with the existing historical model of SPS. Thus, there is a possibility to maintain various entitlement rates (rates of payments per hectare) for the farms in a given region.

The new Member States will be granted an opportunity to use a uniform system of area payments SAPS in the new Member States until 2013.

The draft defines the way of transition from the SAPS system to the SPS system. Generally, it provides similar possibilities to distribute the payment entitlements and to determine their sums, as in other member states, i.e., those using the SPS system from 2005.

Poland supports the proposal facilitating the use of the single area payment system SAPS until 2013. Simultaneously, according to the Ministry of Agriculture, the planned regulations should not exclude allowance for the direct payment system SAPS (with possible modifications) as one of options to be implemented after 2013. Moreover, Poland supports the European Committee's strive for equalisation of the direct payment rates within the regions of individual member states, as these

actions will decrease the extreme disproportions in payments obtained by farmers in different member states. The proposed solutions do not guarantee, however, a satisfactory progress in this regard, leaving the member states a possibility to maintain their differentiated among the farmsteads entitlements to the payments (payment rates). At the same time, Poland is going to postulate unification of the system and direct payment levels, e.g., towards introduction of an obligation to fully regionalise the direct payment rates in each member state.

Modulations and payment limits per farmstead

The European Committee proposed an extension of implementation of the compulsory modulation.

Due to the reform of CAP in 2003, implementation of the compulsory modulation in the EU-15 member states was agreed upon, consisting in gradual decreasing (3% in 2005, 4% in 2006, 5% from 2007 on) the direct payments (Pillar I) and relocation of thus saved up resources to activities related to the development of rural areas (Pillar II). The modulation does not cover those farmsteads, which receive direct payments of maximum EUR 5000.

Seeing the meaning of the new challenges and proposing a stronger orientation of selected actions of Pillar 2 towards these challenges, the European Committee proposed to increase the compulsory modulation gradually, year-to-year, by 2%, starting from 2009. At the same time, the European Committee suggested to increase the modulation level depending on the direct payment sum received by the farmstead (the so-called progressive modulation) — the larger the farmstead, the more the modulation is increased (Table 2).

Table 2

Proposed percentage reduction of direct payments for farmstead within the framework of modulation

Limits (EUR)	2009	2010	2011	2012	2012 – new member States
1- 5 000	0%	0%	0%	0%	0%
5 000 – 99 999	5+2%	5+4%	5+6%	5+8%	3%
100 000-199 999	5+5%	5+7%	5+9%	5+11%	6%
200 000-299 999	5+8%	5+10%	5+12%	5+14%	9%
Over 300 000	5+11%	5+13%	5+15%	5+17%	12%

The element of progressiveness is treated as implementation of announcements included in the Communication of 20 November 2007 on the necessity to implement some substantial reductions in payments for the largest farmsteads. According to the Committee's proposals, the new member states should be covered by the 3% modulation as early as in 2012, because in that year, according to the phasing-in rule, they will achieve 90% of the full payments (10%+ 3%). All additional resources saved up within the framework of the modulation will remain in this member state, where they have been generated.

Simultaneously, the European Committee's proposal excludes the use of the complementary national direct payments (CNDP) by those farms, which are covered by the modulation. At the same time, in order to reduce administrative costs, it is proposed to exclude the smallest farms from the payment system – the member states might chose one of the options: the minimum farm size - 1 ha, or a minimum payment - EUR 250. It was also suggested that on the member state level non-agricultural farms be excluded from the payment system.

Conclusions

The dynamic changes on the European and global agricultural markets in 2007 and 2008 seem to confirm the meaning of the traditional roles played by agriculture and rural areas. This situation revealed validity of the original objectives of the Common Agricultural Policy, i.e., ensure supply of food at moderate prices for the consumers, assure productivity and stability of the markets and a support for the farming incomes. The considerable increase of prices of agricultural products and food in many regions of the World should be understood as a signal indicating a possibility of other perturbations on the international agricultural markets. At the same time, other threats of a global character become more and more noticeable, enforcing a change in the way of thinking about agriculture and agricultural policies. The new threats and challenges indicate a necessity to discuss a stronger consideration to new fields (although

not always associated with agricultural production and market) related to the agricultural activities in the CAP's objectives and set of instruments. One of the most important tasks within the framework of the reform of the Common Agricultural Policy is modification of the direct payments and payments for farms.

Therefore, Poland's view on these issues is the following:

1. The direct payments should maintain one of the main CAP tools, responsible for:
   – support and stabilisation of agricultural incomes;
   – compensation of costs related to meeting the high EU standards (concerning the quality and ways of production, and particularly, the environmental requirements);
   – maintenance of agricultural production in regions of the most difficult conditions.

   This way, the direct payments should help ensure an economic stability in agriculture as well as foodstuff-supply and economic safety.

2. At the same time, the intended direct payment system should ensure a practically achievable compromise between simplicity (to reduce the implementation costs), a general character (as a basic instrument of support), and the need of a better orientation to basic roles of the agricultural policy. It also should ensure coherence between the objectives and levels of support, which necessitates a departure from the existing solutions, where payment rates and national envelopes reflect a historical level and intensiveness of production.

3. Scale of the financial envelope for the EU-27 for direct payments should account for the existing and future challenges handled within the framework of supporting the EU agricultural production and should not be smaller than the level, which is implemented in the present financial perspective.

4. Poland emphasises that it is necessary to maintain the criterion of cohesion at division of allocations obtained through an additional modulation.

At the same time, Poland believes than the new member states should not be covered by a compulsory modulation until they achieve full direct payments, i.e. from 2013, when the complementary national direct payments (CNDP) will not be in use, and its implementation should be gradual, starting from 3%. Meanwhile, the Minister for Agriculture believes that implementation of a unified approach to the scale of the payment reduction (depending on the farm size) requires, first of all, equalisation of the support intensiveness (payment rates) among the member states. It is postulated that in those Member States, where the direct payment rate per hectare remains below the EU average rate, the increase of the reduction degree for subsequent farms size-groups be lower than in the other States.

5. Poland postulates that the minimum size of farms entitled to payments expressed in money should depend upon an average payment rate in the member state. At the same time it is noticed that in Poland, agricultural farms entitled to the single area payment system (SAPS) meet the criterion of 1 ha of arable land.

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Differentiation of Farms Debt in Poland and Other EU Countries

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Abstract
The aim of the paper is to examine the differentiation of farms' debt in Poland and in other EU countries in respect to value, structure, financial aspects like liquidity, and solvency. The examination concerns the agricultural holdings (farms) that are involved in FADN system in the EU countries. The analysis showed that that average debt in absolute terms per FADN farm in the "old" EU countries is generally higher comparing with the similar debt in the "new" member states; however there are some exceptions. In majority countries, the structure of debt indicated the significant role of long and medium term loans in liabilities. The ratio analysis disclosed that the farms generally did not have problems with the liquidity, and that their overall financial stability is good.
Key words: debt, farm, agricultural credit.

Introduction

In market economy, the credit is an important factor of financing the current activity as well as investment. Its potential advantageous influence is a result of financial leverage. The scope of using credits and loans, and in result the level of debt depends on vast range micro and macro determinants. The first group involves factors related generally to farmer's characteristic and farm economics. Most of these factors are outcomes of a farmer's business decision making by so they can be treated as being within the farmer's control. The second group of factors represents macroeconomic environment of farms' activity like economic growth, changes in price level, monetary policy, and inflation[1]. The factors vary across the countries, and so it can be assumed that the level of farms' debt in the EU countries differs too, however, there could be some regularities in the direction of changes of the volume of debt and its structure.

The aim of the paper is to examine the differentiation of farms' debt across the EU countries in respect to value, structure, financial aspects like liquidity and solvency. The analysis will focus on some questions: (i) the internal structure of debt in different countries, (ii) the financial condition of a farm in the EU countries (iii) the overall stability of a farm.

The paper starts with the presentation of the aim of the measurement of the agricultural debt level and the main indicators used to evaluate it. It is followed by the analyses of the scope, dynamic and structure by term of agricultural debt in the EU countries. Next the differentiation in liquidity and solvency of farms is examined. Finally, the conclusions are drawn out from the study results.

The examination concerns the agricultural holdings (farms) that are involved in FADN system in the EU countries. Currently, the annual sample covers approximately 80,000 holdings. In 2006 FADN farms represented a population of about 5,000,000 farms in the 25 Member States, which cover approximately 90% of the total utilised agricultural area (UAA) and account for about 90% of the total agricultural production of the Union[2].

The mix of some methods of the analysis as descriptive, comparative and statistical ones is used in the paper.

The aim for the measurement of scope of the agricultural debt

Debt is a result of using external sources for financing economic activity. Its service (reimbursement of capital and interest payments) charges farms in future periods. Credit has many advantages but used in improper way or on unfavourable conditions can

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[1] see: macroeconomic factors - Danilowska (2008), microeconomic - Latruffe, Petrick, (2005), Petrick (2004)

[2] http:// ec.europa/agriculture/rica/concept_en.cfm

cause serious problems, and even bankruptcy of a borrower so, the balance of drawbacks and benefits of using external financing ought to be done in every case and based on the level of analysis. As the process of debt accumulation from different periods can be observed, and simultaneously the conditions of farm's activity change, the service of the debt can become a problem for the farm. When economic conditions are the source of trouble with repayment, the difficulties with repayment spread among farms and they have problems with the liquidity and followed by the problems with the solvency. In such situation, the debt becomes a problem of the whole sector or even the whole economy when the role of agriculture in economy is high. The financial situation of farms in transition countries at the beginning of the 1990s can be an example of trouble cased by debt at sector level. The agricultural debt as a problem of the whole economy can be illustrated by the Polish example during the great depression in 1929-1935 (Mieszczankowski M., 1983) as agriculture played a much bigger role in the economy 80 years ago comparing with nowadays.

The scope of debt and its possible outcomes should be observed at the farm and sectoral level. At the level of farm the observation of different aspects of debt within the context of other variables characterising the economics of farm provide the valuable information about the condition of farm. The same kind of analysis supported by other indicators like, for example, the percentage of farms in debt or rate of default of credits provide the valuable information on financial health of the whole agriculture and perspectives of the sector.

Debt indicators

The analysis of debt can be carried in absolute and relative measures. The former are used rather rarely comparing with the latter ones. There are some measures used for the estimation of scope of debt. Their levels can signal the possible outcomes of debt for the farms or the sector.

The measures related to debt are generally divided into two main groups: measures of l*iquidity* and measures of solvency.

Liquidity is vital for running farm because even the overall stability is good, the shortage of cash for purchase of essential materials and services can force business out of operation (Warren 2005). Liquidity ratios measure a farm's/company's ability to cover short-term obligations with its short-term assets (cash, inventory, receivables). Different analysts consider different assets to be relevant in calculating liquidity. Generally, the total test ratio and the current ratio are used for the evaluation of liquidity ratios.

The total test ratio can be treated as a test of ability of the farm to survive. It is calculated as:

$$Total\ Test\ Ratio = \frac{Liquid\ Assets}{Current\ Liabilities}$$

where:
liquid assets mean current assets minus stocks
current liabilities is a sum of overdrafts and creditors

Stocks are usually the least liquid current assets and in urgent cases when it is necessary to get the financial means quickly, they cause losses during their sales so they are not taken into consideration in that ratio. In theory, the total test ratio should be at least 1 indicating that the business could meet short term demands on its funds without restoring to the sale of assets.

The next important and popular ratio – current ratio is estimated as:

$$Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities}$$

A target figure often quoted is a minimum of 2, but it depends on the type of business and particularly on the type and level of stock carried (Warren M., 2005). The higher the current ratio, the more capable the farm is of paying its obligations. A ratio under 1 suggests that the farm would be unable to pay off its obligations if they came due at that point. While this shows the farm is not in good financial health, it does not necessarily mean that the farm will go bankrupt - as there are some ways to access financing - but it is definitely not a good sign.

The solvency refers to the ability of farm to meet its long-term obligations, so its analysis can say much about overall stability of a farm. Moreover, it can indicate the level of financial risk. According to Svendsen (2003) there is a significant correlation between the debt ratio and the financial risk. The solvency is estimated mainly by debt ratio. It is considered as the main indice. However, there are some other indicators like the percentage equity (net capital/total assets) or long-term debt to equity ratio.

Debt ratio is calculated in two ways as:

$$Debt\ Ratio = \frac{Total\ Liabilities}{Total\ Assets}$$

(Svendsen S., 2003, Brigham E, 1996)

or

$$\textit{Debt Ratio} \ (\textit{net capital ratio}) = \frac{\textit{Total Assets}}{\textit{Total Liabilities}}$$

(Warren M, 2005, Lee W. et al, 1988).

It shows how much the farm/ company relies on debt to finance assets. It provides a measurement of how likely a farm will be to continue meeting its debt obligations In general, the higher level of the ratio the higher risk and the greater the

probability that the farm will default on its debt obligations

According to Lee (Lee W. et al 1988) it is probably the most important measure of the overall financial position of the business because it reflects the likelihood that the sale of all assets would produce sufficient cash to cover all debt outstanding.

The farms' debt and dynamics

Agriculture of the post-soviet countries that joined the EU in 2004 has undergone the great transition

Table 1

Number of agricultural holdings and their structure by UAA size in 2003

	Total (1,000)	<5 ha	5-<20 ha	20-<50 ha	>=50 ha
		%	%	%	%
EU (25 countries)	9870,96	61.88	2301	8.34	6.77
EU (15 countries)	6238,96	56.60	2248	11.00	9.92
Belgium	54,94	27.99	2934	27.81	14.87
Bulgaria	665,55	96.81	2.06	0.37	0.77
Czech Republic	45,77	58.09	19.86	8.50	13.55
Denmark	48,61	3.70	34.70	26.27	35.33
Germany	412,3	23.64	33.29	22.81	20.26
Estonia	36,86	50.84	34.21	9.14	5.81
Ireland	135,62	6.33	38.39	38.32	16.96
Greece	824,46	76.10	19.79	3.32	0.79
Spain	1140,73	54.96	26.34	9.97	8.73
France	614	27.61	19.69	19.76	32.95
Italy	1963,82	76.83	16.66	4.44	2.06
Cyprus	45,2	87.54	9.67	1.88	0.93
Latvia	126,61	50.64	39.06	7.34	2.97
Lithuania	272,11	62.07	31,49	4.58	1.86
Luxembourg	2,45	19.59	16.73	17.96	45.71
Hungary	773,38	89.64	7.13	1.84	1.39
Malta	10,99	97.73	2.18	0.00	0.00
Netherlands	85,5	29.59	30.13	28.12	12.16
Austria	173,77	32.25	42.24	19.65	5.85
Poland	2172,21	66.51	28.51	4.16	0.82
Portugal	359,28	76.65	17.01	3.63	2.71
Romania	4484,89	93.76	5.71	0.21	0.31
Slovenia	77,15	57.55	39.31	2.85	0.29
Slovakia	71,74	91.87	3.53	1.25	3.35
Finland	74,95	9.94	36.34	37.20	16.53
Sweden	67,89	10.38	35.20	26.01	28.40
United Kingdom	280,63	36.89	20.20	16.04	26.87

Source: author's calculations based on Eurostat

since 1990. The process of reprivatisation in every country has its specifics. In result a new structure of ownership in agriculture was established. The number of agricultural holdings and the structure of holdings by UAA size in 2003 is presented in Table 1.

The number of agricultural holdings and their structure by area differ noticeably among the EU countries. Generally in the "old" EU-15 countries there are relatively less agricultural holdings comparing

with the "new" member countries that joined the EU in 2004. Moreover, the process of concentration of agricultural production is more advanced, which is reflected in much higher percentage of agricultural holdings with the area of 25 and more hectares in the old member countries than in the new ones. Taking into consideration that in these countries the level of development of agriculture is much higher and the system of financial services of agriculture works

Table 2

Average total liabilities (EUR) per FADN farm and their structure by term of maturity (%)

Country	2004			2005			2006		
	Value	Long & medium-term loans %	Short term loans %	Value	Long & medium-term loans %	Short term loans %	Value	Long & medium-term loans %	Short term loans %
Belgium	123299	99.48	0.52	120398	99.50	0.5	126914	99.53	0.47
Cyprus	5914	81.92	18.08	3191	93.23	6.77	2693	96.96	0.04
Czech Republic	156999	59.10	40.90	160914	58.62	41.38	171645	6009	39.91
Denmark	644073	93.65	6.35	716166	93.48	6.52	817227	93.56	6.44
Germany	122336	65.08	34.92	122608	64.66	35.34	130155	64.97	35.03
Greece	424	69.58	30.42	248	50.81	49.19	308	46.10	53.90
Spain	5033	90.90	9.10	5463	84.44	5.56	5623	88.48	11.52
Estonia	33717	54.89	45.11	37896	59.97	40.03	47676	60.89	39.11
France	120095	63.88	36.12	120733	63.99	36.01	119410	63.35	36.65
Hungary	37972	61.94	38.06	36699	57.31	42.69	31509	51.38	48.62
Ireland	14251	82.44	17.56	14945	85.45	14.55	17081	82.07	17.93
Italy	3460	86.01	13.99	3652	89.98	10.02	3624	89.90	10.10
Lithuania	7429	39.75	60.25	9781	48.08	51.92	13425	62.03	37.97
Luxemburg	147296	86.16	13.84	153384	86.88	13.12	157441	87.47	12.53
Latria	14851	64.20	35.80	21642	68.22	31.78	29192	72.82	27.18
Malta	x	x	x	10281	57.16	42.84	14390	47.64	52.36
The Netherlands	502549	84.95	15.05	534496	86.48	13.52	551846	87.37	12.63
Austria	38451	74.79	25.21	40671	73.80	26.20	38192	73.90	26.10
Poland	7119	71.19	28.81	7549	70.80	29.20	7800	69.40	31.60
Portugal	2399	46.64	53.36	2377	46.70	53.30	3320	48.25	51.75
Finland	73727	92.77	7.23	86707	94.12	5.88	83442	94.08	5.92
Sweden	164220	82.96	17.04	176797	82.90	17.10	192021	82.21	17.79
Slovakia	43070	60.35	39.65	61706	51.87	48.13	79428	53.87	46.13
Slovenia	4749	98.78	1.22	3728	98.04	1.96	3116	97.98	2.02
United Kingdom	120223	46.53	53.47	136874	44.95	55.05	140052	47.25	52.75
Total	41123	74.34	25.66	42843	74.55	25.45	+45109	74.86	25.14

Source: author's calculations based on FADN data

Table 3

The current ratio in an average FADN farm

Country	2004	2005	2006
Belgium	106.5	114.4	119.0
Cyprus	25.5	67.6	237.0
Czech Republic	2.6	2.6	2.7
Denmark	4.0	4.3	4.3
Germany	2.2	2.2	2.2
Greece	26.7	31.9	24.6
Spain	135.2	84.5	165.3
Estonia	2.4	2.4	2.0
France	2.9	2.9	2.9
Hungary	2.9	2.8	2.7
Ireland	12.7	15.2	11.2
Italy	44.5	101.7	105.1
Lithuania	5.4	4.8	5.4
Luxemburg	7.6	7.7	8.2
Latria	4.5	4.0	3.8
Malta		5.8	3.8
The Netherlands	2.2	2.5	2.9
Austria	7.8	7.4	8.3
Poland	5.3	5.2	5.4
Portugal	7.9	8.8	6.6
Finland	9.6	10.8	10.9
Sweden	2.7	2.8	4.1
Slovakia	14.1	8.9	7.7
Slovenia	116.3	96.4	101.1
United Kingdom	1.9	2.0	2.3
Total	4.3	4.8	5.4

Source: author's calculations based on FADN data

smoothly it can be expected that the average debt is much higher too. The data in Table 2 confirm that the average debt per FADN farm in absolute terms in the old EU countries is higher comparing with the new members; however there are some exceptions in both groups of countries like: Greece, Portugal, the Czech Republic, and Hungary. The highest average debt per farm amounting to EUR 800 thousand was in Denmark, the smallest nearly 270 times lower in Greece. The debt of an average Polish FADN farm is not high. In the group of the "new" EU members it is higher than in Slovenia and Cyprus.

During the three examined years, the analysed debt has increased in 17 countries, in 5 countries very noticeably, while in 5 decreased and in 3 countries (among them Poland) no clear tendencies in the level of debt can be observed.

In the period of 2004-2006 the debt has risen in 7 new members of the EU; while in 3 countries it has fallen. The increase was very high in 4 of these countries – nearly 2 times except Malta and in 2 countries experienced the decrease of 1.5 times.

The structure of debt indicates the significant role of long and medium term loans in liabilities. In 2004 and 2005 the share of this kind of debt was less than 50% only in three EU countries and in 2006 in four countries. In three examined years the highest share of long and medium term debt was in Belgium. It was extremely high and reached nearly 100% of liabilities. In 2004, the lowest share of this kind of debt was in Lithuania, next year in the United Kingdom and in 2006 in Greece. Generally, the share of long and medium loans in liabilities was much

Table 4

Total liabilities/total assets/ ratio (%)

Country	2004	2005	2006
Belgium	29.93	28.02	27.66
Cyprus	5.85	2.59	1.45
Czech Republic	24.01	23.35	22.19
Denmark	57.63	57.02	50.42
Germany	17.16	17.06	17.72
Greece	0.59	0.33	0.38
Spain	2.59	2.57	2.21
Estonia	22.73	25.47	28.07
France	37.52	37.82	36.85
Hungary	28.92	28.91	26.57
Ireland	2.72	2.14	1.94
Italy	1.23	1.17	1.16
Lithuania	11.14	13.09	14.83
Luxemburg	17.15	16.72	16.91
Latria	23.44	28.65	33.57
Malta	x	4.15	4.92
The Netherlands	33.58	33.34	35.57
Austria	10.60	10.71	9.85
Poland	10.00	10.32	10.11
Portugal	3.24	3.14	4.20
Finland	26.06	28.15	26.58
Sweden	34.12	30.17	29.95
Slovakia	3.04	4.22	7.04
Slovenia	2.39	2.06	1.80
United Kingdom	12.01	12.17	11.96
Total	15.37	14.83	14.59

Source: author's calculations based on FADN data

lower in the new EU members comparing with the old members (Table 2). It was lower than the average level for all countries. The three-year period is rather short for radical changes in the structure of the debt. So in 16 countries the structure of liabilities was rather stable (the differences were not higher than 2.5 percentage points). Most of these countries belonged to the old EU members group. The structure of debt changes more significantly in seven "new" members of the EU and in two old. Especially noticeably, the share of long and medium term rose in Cyprus and Lithuania by 18% and 50% respectively, and fell in Greece - 34%.

The level of debt is a very important issue from the perspective of debt service. As aforementioned, it can be evaluated from short and long perspectives. In short period the problem of liquidity is important,

while in long – the solvency. The data in Table 3 illustrate the problem liquidity.

The current ratios showed very different situation of farms across the EU countries. The levels of ratios varied from extremely high level over 100 in Spain, Italy, Slovenia, and Cyprus to one digital level in many other countries. The value of the short term debt was very small in countries with high ratio whereas the level of current assets was quite high. The structure of the liabilities that indicate the preferences of farms to finance their current activity by debt could suggest the level of current ratio but it is not rule that low share results in high current ratio. Four countries with very high ratios had very small share of short term loans in total liabilities but simultaneously in other countries with comparable share, for example, the Netherlands the current ratio was many times smaller

comparing with the mentioned countries. Despite the very different level of current ratios, in every examined country the current ratio was at safe level suggesting that the farms did not have difficulties with paying their current financial obligations. During the examined period the levels of current ratio improved or were stable in 18 countries. In other countries they got worse but not to an extreme level.

The important measure of the overall financial position of farm is reflected by net capital ratio. Like in the case of current rate, the data in Table 4 indicate very different level of financial solvency across the EU countries. The highest size of ratio amounting to 50-57% was in Denmark. It was much higher – about 20 percentage points - than in France that had the second result. The noticeably higher level of the ratio in Denmark comparing with other countries has been observed already in the 1990s and indicated the severe problem for Danish agriculture (Svendsen S., 2002). The positive signal of this situation is observed in 2006 when the ratio decreased by 7 percentage points. Relatively high magnitude of the ratio was in such old members of the EU as the Netherlands, Sweden, Belgium, and Finland, and in such new members like Hungary Latvia, and Estonia. The lowest degree was characteristic for Greece where it amounted to less than 1%. The very small ratios existed in Italy, Ireland, Cyprus, Slovenia, and Spain. They indicate that the farms did not take benefits from the financial leverage. In Poland the ratio was rather small and stable reflecting the carefulness of the Polish farmers in using credits as a source of financing of investments.

Generally, during three years the ratio has not change radically, it decreased in 11 countries in some of them the initial level of the ratio was very small so it was no positive signal. In seven countries the tendency was not clear, and in seven countries the ratio grew. The comparatively high growth can be observed in Latvia, Slovakia and Estonia; on the contrary the stable trend or slight decrease took place in the old EU members.

Conclusions

1. The study showed that the average debt per average FADN farm in absolute terms is higher in the "old" EU countries comparing with the "new" members; however there are some exceptions.

2. The structure of debt indicated the significant role of long and medium term loans in liabilities. Generally, the share of long and medium loans in liabilities was much lower in the new EU members comparing with the "old" members.

3. In every examined country the current ratio was at safe level suggesting that FADN farms did not have difficulties with paying their current financial obligations. During the studied period the levels of current ratio improved or were stable in 18 countries.

4. The level of debt ratio pointed out that the financial situation of FADN farms is stable in long term, but the very low level of relation total liabilities to assets in some countries showed that the farms did not get benefits from the financial leverage. The problem of reasons of these phenomena deserves attention and further search.

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Necessity and Possibilities of Subsidising Regular Bus Line Transportation in Estonia[1]

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Abstract

Bus transport is the main mode of public transport in Estonia. Efficient transport system is an important precondition of economic and social development. One of the essential problems here has been the low profitability of transportation in peripheral and sparsely populated areas in Estonia. The paper will deal with the study of ways how to guarantee the survival of regular bus line transportation for the whole territory of Estonia. Estonian transport sector is characterised by free access to regular services and occasional services, infrastructure services and operator business. On conditions of the sparseness of the population, the price for public transport is inevitably high, which necessitates a need to use sparse timetables in rural areas.

Passenger transport related bus lines in Estonia can be divided into commercial lines and public lines. Commercial lines operate on the basis of an authorisation of the regular line or a contract concluded with the contracting entity and funding is fully executed on a commercial basis, i.e., all the means necessary for maintaining the line emanate from ticket income paid by passengers or from the contracting entity.

Local bus lines are operating as subsidised lines but long-distance lines are not subsidised and they are operating as commercial lines. A few local lines are also operating on commercial grounds in the regions with such great passenger flow which enables to earn on ticketing to the extent that it covers the expenses incurred for servicing the lines.

Public transport should be a wholesome system. The public sector must always pay extra (to subsidise) to have a high-quality public transport. The state invests into the infrastructure and subsidises investments of the local government, improves legal regulation regarding the distribution of infrastructure capacity, organising public transport and its safety and security requirements.

Key words: bus transportation, rural development, subsidies.

Introduction

In organising public transport in Estonia it is important to create a wholesome system that would help solve transport-related questions in an integrated way. The state interferes with the development of transport sector via specific purpose subsidies, investments, buying services, through legal regulation, and supervision.

The main form of public transport in Estonia is bus transport. The number of passengers, that, in the recent years has been decreasing, is now growing again. The most popular means of transport is still bus transport, used by 66% of the passengers. The most important strategic initial document from the point of view of the county bus routes is the Development Plan of Transport for 2006-2013, where the actions are stated on the forming of the carriers' costs and the amount of the state subsidies.

A characteristic factor in the public transport sector is that both subsidised and independent companies are working side-by-side on the market. Therefore the market situation is somewhat unequal, regarding both the different means of transportation and different routes. The bus companies that do not receive any kind of subsidies are able to operate loss-making long-distance routes that have many stops and go to faraway villages, with the help of their profit-making long-distance routes. By reaching through several counties, the last-mentioned routes also fulfilled the role of the county route.

Based on the Public Transport Act, the state covers the missing part of the public county bus line from the state budget entirely or partially, by the request of the local government, if the revenue base of budget in the local government is not sufficient. The task of the county government is to organise public competitions to choose the carriers both for public and private carriage, and to conclude contracts with competent authorities for organising in-county bus transport and to supervise the fulfilment of concluded contracts.

According to the contract, co-operation with the county residents is needed in order to find out what are their travelling needs, and to check the operation of the particular county route(s). There are counties with main roads going through them and there are no scheduled stops in some of the bus stops. The buses only have stops in the bigger villages. Therefore, the people living in smaller villages have no use for the bus route whatsoever. It is important that a person would be able to drive from a certain place to the place s/he needs.

Only local bus lines – rural municipality, town and county lines – are operating as subsidised lines in Estonia. Long-distance lines are not subsidised and they are operating as commercial lines. A few local lines are also operating on commercial grounds in the regions with such great passenger flow which enables to earn on ticketing to the extent that it covers the expenses incurred for servicing the lines.

The aim of this article is to analyse the necessity and possibilities of subsidising regular bus line transportation in Estonia. Hence, the tasks concerning the article are to handle the governing of bus transport and to assess the management of Estonian bus transport companies. In achieving these goals, our research methods contain descriptive and comparative analysis of bus transportation, mainly competition and management in the segment.

Role of the bus transport in Estonian public transport

The bus routes in the carriage of passengers can be divided into two: public and commercial routes. The commercial bus routes are operated by companies that have to bear all the costs on their own, whereas public bus routes receive state subsidies. Public bus routes are operated on the one hand by a public service operator and on the other hand by a competent authority, the latter usually being a local or regional local government, who have concluded a fixed-term contract between them. Today, the level of public service contracts and the network of routes are very different in different counties.

Traditionally, the entire transport sector has been in a unique situation compared with other sectors of the economy. Even though the arrangement of competitive tenders has established a firm position on the European public transport market, this has not become a predominant method of public transport.

In 2000 a European Union Regulation was finished, according to which the public transport sector in all Member States (excluding rail transport) shall be open to competition. In 2005 the European Commission submitted a proposal for a regulation of the European Parliament and of the Council on public passenger transport services by rail and by road (Proposal for …). This provides a possibility of concluding direct contracts with public service operators without organising public competition.

Stemming from regional needs, it is strived to improve access to core areas from regions remote from centres, create physical prerequisites for establishing cooperation networks of cities and design development zones around basic transport trunk roads in the EU by means of transport.

The main task of public transport is to create travel possibilities to satisfy people's needs for travel as well as to reduce the traffic load of roads and streets. With an increase in public wealth, rapid motorising and a decline in the popularity of public transport began. In conditions of the sparseness of the population, the price for public transport is inevitably high, which necessitates a need to use sparse timetables in rural areas. The population's solvency will not allow increasing ticket prices and also the limitedness of the budgetary means of local governments has not allowed taking public transport subsidies to such a level as to allow public transport vehicles to compete with individual vehicles in relation to tighter traffic frequency, speed and convenience (Development plan …).

The number of public transport users has been on a continual decrease starting from 1990 to 2005. If 432 million passengers used the services of various modes of transport in 1990 in Estonia, then calculated 202.7 million trips were taken in public transport in 2005. In 2006 the number of passengers increased by 2% compared with the previous year meaning that the services of public service operators were used by 214.2 million passengers in 2006 (Pukk, 2007). 2/3 of public transport trips are taken by bus, nearly 30% in city electrical transport and a mere 2% by train in Estonia as a whole. The percentage of public transport forms 30-40% of the total number of trips in cities. The percentage of the number of passenger mileage executed in traffic in private vehicles double exceeds the index of public transport outside city limits (Estonian Statistical …, 2005). The small percentage of rail transport is due to the limitedness of the infrastructure. Passenger transport by modes of transport in years 1992-2005 is reflected in Table 1.

The chief mode of public transport in Estonia is bus transport. Tallinn and its neighbourhood are the only area where also trams, trolleybuses and electric trains are used beside buses. On the basis of public transport management, the county government or local government will conclude a public service contract to service particular lines with the public service operator having submitted the best tender based on competition and will pay a subsidy to the

Table 1

Passenger transport by mode of transport 1992-2006 (million passengers)

	Road transport (buses)	Rail transport	Maritime transport	Air transport	Tram and trolleybus transport
1992	344.7	15.8	2.1	0.2	
1993	281.6	16.7	2.6	0.2	
1994	212.8	11.6	2.8	0.2	
1995	191	8.8	3.0	0.2	
1996	187.7	6.7	3.0	0.2	
1997	193	5.6	3.3	0.3	
1998	173.7	6.7	4.0	0.3	
1999	170.4	6.8	4.7	0.3	
2000	187.8	7.3	4.8	0.3	
2001	171.7	5.5	4.5	0.4	67.2
2002	171.1	5.2	4.8	0.4	70.8
2003	162.8	5.1	4.6	0.6	71.5
2004	149.5	5.3	5.4	1	63.7
2005	139.8	5.1	5.5	1.5	57.6
2006	141,6	5,3	5,8	1,5	57,6

Source: Passenger transport by mode of transport. Homepage of the Statistical Office 2006 (Passenger transport …)

public service operator to compensate for its expenses (Public transport policy …).

The rolling stock of public transport is old. The average lifetime of Estonian tram and train cars is 20-30 years, while that of county buses is 17 years and more. This deteriorates the quality of the service; therefore the passengers prefer private vehicles to worn-out and uncomfortable vehicles of public transport. The maintenance costs of city and county bus lines have increased by 64.9% during the past nine years. The rise in the prices of transport is due to larger expenses on fuel and replacing of expired buses.

Passenger transport by buses in Estonia is divided into several branches proceeding from the nature of transport and the principles of funding. Due to the nature of the transport, carriage by bus is divided into occasional services and regular services (Rules for regular …).

Occasional services are the transport of a group of passengers formed in advance in the name of a common goal (tourism, concert and theatre visits, etc.) on the initiative of the contracting entity or the public service operator, which is performed on the basis of a single order or a contract between the contracting entity and the public service operator. Regular services are deemed to be regular passenger transport organised on a certain travel road and on the basis of a timetable, where passengers can enter a vehicle and exit it in stops designated in the timetable.

To perform regular services, the public service operator must have an authorisation of the regular service. Regular services are divided into rural municipality, city, county, long-distance and international lines (Proposal for …).

Local regular services are passenger transport in road traffic on a rural municipality, city or county line whose route and its start and end point are located within the administrative territory of the same rural municipality, city or county. Long-distance regular services in road traffic are passenger transport on a line whose route is located in various counties. International passenger transport is passenger transport on a route crossing a state boundary.

Starting from the year 2000 to the year 2005, the number of passengers on county lines has decreased by 2.5 million, i.e., 10% (Figure 1). An increase in the number of passengers on long-distance bus lines took place in 2002, when there were about a million, or 16%, more of passengers than in the year 2000. In 2003 the number of passengers remained about the same as in the previous year, yet thereafter a new decline also in that field started, and

Bus passengers in national regular services
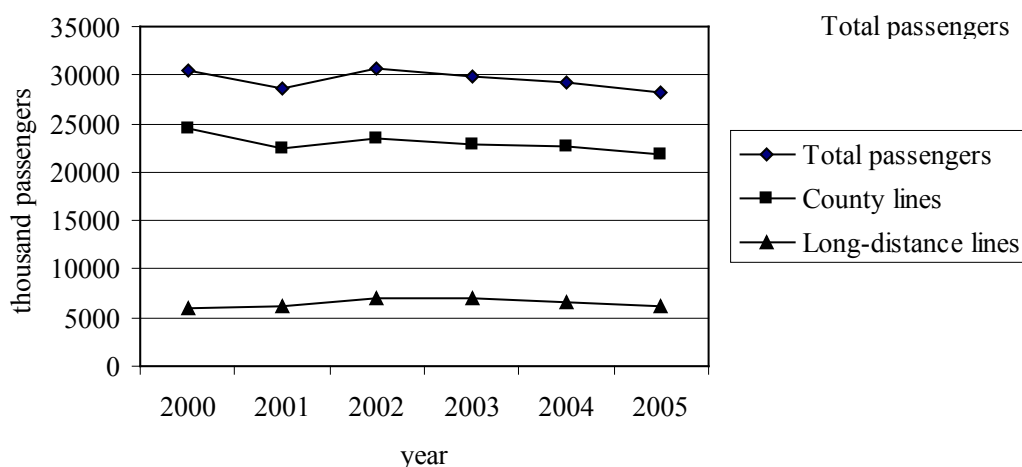
Source: Statistical Office

Figure 1. Number of bus passengers in national regular services

by the end of 2005 the number of passengers had decreased by ~10% compared with the years 2002 and 2003.

The number of passengers using occasional services has increased considerably during the past years. By the end of 2005 the number had grown by 30% compared with the year 2003. A majority of it is contributed by foreign tourists arriving in Estonia, a considerable part of whom is mainly cruise tourists visiting Tallinn.

Bus transport management and competition between companies

The chief mode of public transport in Estonia is bus transport. The fact that local governments own networks of roads and streets, and repair and maintain them in accordance with their revenue base is of importance. Investment decisions in relation to the local infrastructure are taken at the local government level. Also, passages of national roads run in the territories of local governments and it is inevitable that the state participates in the development, and maintenance of these passages as well as in the development of public transport services in these passages. In rural areas the maintenance of an infrastructure is rather expensive while considering the number of users. The means meant for the maintenance and development of a road network are spent on preserving the current level of the good condition of an infrastructure, rather than on qualitative improvement.

Estonian transport sector is characterised by free access to regular and occasional services, the services of infrastructure and operational activity. Many companies on the international transport market feel its

effect in the form of increasingly stiffer competition. In global competition it is inevitable to improve the economic efficiency of transport services.

Competition in the passenger transport sector in Estonia is extremely stiff. The number of bus companies performing regular services is nearly one hundred, including 15 bus companies in Harju County. One of the crucial tasks of the state is to ensure that fair competition prevails on the transport service market. In order to do that, it is imperative to reinforce both the legal base and supervision over compliance with legislation. The market is, however, influenced by various forces that impede effective functioning of the competition mechanism and render reaching perfect competition impossible. Such forces are market failures. The chief thrust of the competitiveness of transport companies will still be business activity (Pukk, 2007).

Passenger transport related bus lines in Estonia can be divided in two: commercial lines and public lines. Commercial lines operate on the basis of an authorisation of the regular line or a contract concluded with the contracting entity and funding is fully executed on a commercial basis, i.e., all the means necessary for maintaining the line emanate from ticket income paid by passengers or from the contracting entity.

Public regular services are provided on the basis of a fixed-term public service contract concluded between a public service operator and a competent authority, the latter being a local government or regional unit or any other structural unit of the public sector (e.g., a public transport centre). Stemming from the contract, a public service obligation in relation to the public

service operator will be created, for the performance of which a subsidy for specific purposes will be allocated from the state or local government budget. This part is called also a subsidy or public service compensation and such lines are called subsidised lines, respectively. In 2007, public bus lines received EEK 220 million as state-provided subsidies (Kalberg, 2007). For subsidising county lines, the state budget provided EEK 245 million for 2008; EEK 97.8 million of which the ministry distributed between the counties at the beginning of the abovementioned year. The distribution of subsidies should be based on the following principle of everyone having an equal opportunity to reach necessary destinations and work by using public transport. Equal opportunities within this context mean both the monetary situation, considering the income of the people as well as the existence and closeness of the sufficient transport line network. Generally, the people in towns have higher solvency than is the average solvency of the people in the counties. The expenses on bus transport are bigger for the people in the counties than in towns.

Estonian public transport is organised in such a manner that the county government or local government will conclude a public service contract to service particular lines with the public service operator having submitted the best tender based on competition and will pay a subsidy to the public service operator to compensate for its expenses. Public transport management is best-weighed in Tallinn City and in Järva County, where the transport office or the public transport centre of the City contracts for transport and also collects ticket income. The subsidy is added to the ticket income and the amount obtained is paid for transport services. The public transport subsidy system is based mainly on amounts used in the previous years and does not consider local speciality or development needs, and is therefore quite ineffective. The forecasts of county line revenues and state budget subsidies show that the increase of subsidies up to the year 2013 is faster than the increase of revenues of the carriers. As the growth in the number of passengers is slower than in transit lines, the revenues will grow relatively slowly (Maakonnaliinide …).

Annually the state spends about 140 million on subsidising bus lines, to which about EEK 50 million from local governments is added. The public transport centre established as a non-profit association in Järva County in 2004 has been capable of ensuring an economically efficient public transport system favourable for the population. During three years of activity, it has been possible to pay a substantially more favourable price to the public service operators without raising the ticket price. By establishing a public transport centre, the possibility that the county

government and local governments contract for parallel and logistically uncoordinated lines and spend the taxpayer's money on maintaining inefficiently overlapping lines will be ruled out (Plan for using …). County bus transport now depends primarily on the most optimal satisfaction of the passengers' needs. The public transport centre systematically examines the people's needs for travel and demand for public transport and develops a coordinated and well-weighed line network and necessary infrastructure.

Development security for the bus companies is ensured by the contracting entities: county governments and local governments. While looking into the future, it is far-sighted to renew the term of regular service contracts submitted for public competition up to 10 years. For the time being travelling is based on temporary contracts renewed for one year (Public transport policy …).

Only local bus lines operate as subsidised lines in Estonia: rural municipality, city and county lines. No long-distance line receives subsidies and they operate as commercial lines. Also some local lines operate on a commercial basis in areas where there are passenger flows so huge enabling to get so much ticket income that it will cover expenses incurred when servicing the lines.

Conclusions

1. Opening the bus transport market for competition has not entailed remarkable development in the sector. One of the decelerators of the development of bus transport has been the scarcity of resources. Public transport as a commonly used benefit needs to be subsidised in order to offer it efficiently, since the private sector does not produce a respective service in an amount the society would need, i.e., in a socially effective amount. The means of the public sector are, however, limited, whereby undertakings operating under public service contracts have not earned income for the services provided by them in such an amount that would have enabled them to invest in considerably newer buses, develop the staff and improve the quality of the service.

2. Another substantial factor decelerating the development of the bus transport sector is the unsuccessful public procurement system. The current public service operators are able to continue operating on the basis of temporary one- or two-year contracts in many counties. A two-year contract is, however, not enough to motivate the undertaking to make long-term investments, for instance, in the form of obtaining newer buses.

3. The main problem on the road transport market is the deficiency of supervision. Several laws have been passed in Estonia over the past years introducing additional regulations and requirements in road transport. At the same, supervision over the accomplishment of these regulations and requirements has been weak. The weak supervision has, in its turn, aroused unfair competition between the public service operators, thus harming honest public service operators.

4. The distribution of subsidies should be based on the following principle of everyone having an equal opportunity to reach necessary destinations and work by using public transport. Equal opportunities in this context mean both the monetary situation, considering the income of the people as well as the existence and closeness of the sufficient transport line network.

5. The purposes of developing regionally important transport infrastructure are improving connections between regions, ensuring connections to peripheral areas, satisfying the needs of the population in passenger transport with optimal transport lines, and managing the provision of public transport service with more effective organisation.

6. High-quality public transport cannot be organised by local governments only, even a county could, in some cases, be a unit too small. Disunity makes the everyday travelling of a person costly and complicated. Public transport should be a wholesome system. The public sector must always pay extra (to subsidise) to have a high-quality public transport. The state invests into the infrastructure and subsidises the investments of the local government, improves legal regulation regarding the distribution of infrastructure capacity, organising public transport and its safety, and security requirements.

7. The task of developing Estonian public transport service is to form an attractive, environmentally friendly and sustainable alternative to cars, when satisfying the need of the people to get around.

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Dynamics and Tendencies of Delayed Payments in Latvia

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Abstract

Credit is an important impellent of economics and promoter of welfare, that is the reason why government politics supported credit accessibility to legal and natural entities, which has led to the delayed payments in every business sector. The amounts of crediting in late years have sharply risen, wherewith also increasing the number of inhabitants and enterprises, who cannot repay their civil liability commitments. It is important to solve the delayed payments problem, as the level of delayed payments is rising in Latvia peripheral economic breakdown. It is also shown by the information used in the article on the present situation.

The discipline of payment has substantially taken a turn to the worse, adversely to the years of 2000 – 2005, when the discipline of the payment improved.

Not all civil liability commitments of legal and natural entities in Latvia were entered into the Register of Debtors. Now when the Credit Register has started the operation, the situation has become much clearer.

One of way for creditors to return their funds is to apply to the court. It shall be noted that requirements in debt recovery procedure changes, so the same refers to the interpretation of the laws and regulations. The debt collectors change contract regulations unhesitating, which is provided by positive results in courts.

Between 2003 and 2008 approximately 11% of plaintiff actions have been satisfied already in court, closing them. 63% of plaintiff actions have been satisfied with the judgment of court.

Key words: crediting, debtor, delayed payments, commitment recovery, court.

Introduction

Credit is an important impellent of economics and promoter of welfare, that is the reason why government politics supported credit accessibility to legal and natural entities, which has led to the delayed payments in every business sector. The amounts of crediting in late years have sharply risen, wherewith also increasing the number of inhabitants and enterprises, who cannot repay their civil liability commitments. It is important to solve the delayed payments problem, as the level of delayed payments is rising in Latvia peripheral economic breakdown. It is also shown by the information used in the article on the present situation.

Hypothesis – it is clear that the delayed payment problem in Latvia rises, and commitments may be recovered applying to the court.

Aim of the research - to study the dynamics and tendencies of delayed payments in Latvia.

Tasks to achieve the set aim:
- to study the banks lending tendencies;
- to examine the deferred payments consequences in business and terms of paying accounts;
- to define the results of debt recovery through court.

Methods: abstract - logical, monographic, graphical, analysis, synthesis, and comparison method.

Research results

Unconsidered choice of financing source can lead to negative consequences in an enterprise. If enterprise has already started operation and successfully become stable in the market, it can get extra finances in a way of borrowed money or a loan. One of the main reasons for experienced enterprises to require extra finances for current assets and capital assets is their wish to expand business activities. An enterprise may use internal and external loan to finance these extra necessary assets (Rurāne M., 2003). Loans and credits are the most popular sources of financing. The need for finances appear to guarantee the consistency of capital movement, so credit may be profitable as used by an enterprise free funds and other needs of the enterprise.

Banks lending tendency

Despite experts forecasts that in the past years approximately 12 – 13% of households have loans and the financial situation allows taking loans for approximately 15% of households, since households plan and are willing to make
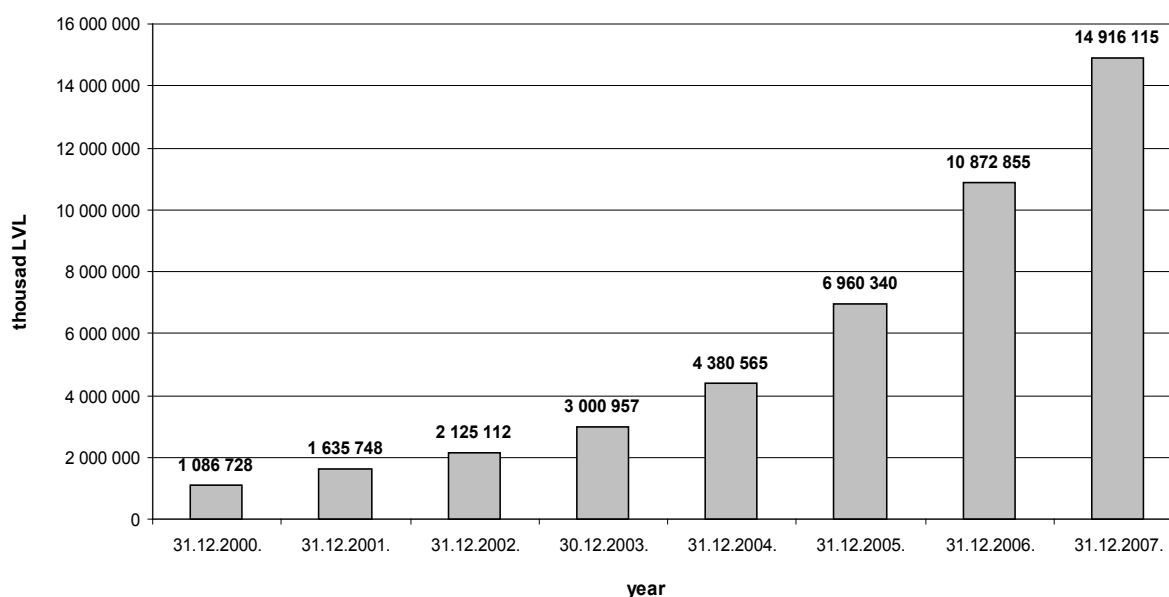
Source: made by the author using the data from the Financial and Capital Market Commission's statistics on banks balance sheets (http://www.fktk.lv/lv/statistika/kreditiestades/ceturksna_parskati/)

Figure 1. **Disbursed net loans in Latvia in the years of 2000 – 2007, thousand LVL**

investments in real estate renovation and/or buying (Kārkliņš R., 2007), in 2008 banks stopped the speed of lending. Disbursed net loans in Latvia for the years of 2000 – 2007 are given in Figure 1. Although in the past years the amount of banks given loans had risen sharply, in 2008 the amount of disbursed loans stopped the increase. The amount of net loans disbursed by banks in Latvia on September 30, 2008 comprised LVL 16 659 006 thousand. It caused the elaboration of the government's inflation decreasing plan policy, banks caution in lending, decline in producing amounts in enterprises, intensified solvency problems in enterprises, and increase of borrowers, who could not pay back their debts to banks.

More and more Latvian inhabitants "sink in big credit sea", being unaware of all risks they have to face. Most risk is undertaken by the long term borrowers, as the rise of interest rate may substantially increase a monthly payment. Totally the monthly payment could increase by 25 – 30%. However, such an increase of interest rate in the monthly payment structure can affect borrowers paying ability, as their income could be less, and it can still be reduced due to the influence of inflation; thus generating solvency problems for borrowers.

Considering the world economic processes, there is no surprise, that the banks risk appetite has decreased during the last months. One year ago banks were ready to finance up to 90% of a project implementation costs, but now entrepreneurs have to consider that the financing would not be bigger than

70%. Banks expect that an enterprise itself is ready to undertake a risk and share it with the bank. The rest financing for project implementation enterprises have to invest themselves or attract other investors. On the background of the present economic development, precisely – decline, every new project becomes more risky, since it is very complicated both for bank and for enterprise to gather information on all the possible risks, and to forecast future perspectives. Also entrepreneurs become more cautious and pragmatic, they have more realistic view on the future, and therefore also the number of new projects has decreased (Dēliņš K., 2008).

Government failure during the crisis is that they did not evaluate the spiral of inflation and promotion of wages, which were based on credits. The modern bank system has stimulated credit expansion in Latvia. Consequently Latvia's privilege turned into disaster. Latvia and the Eastern Europe experienced a feature that was less widespread in the world – Latvians were credit free, and they were capable to take credit and they had a chance to take credit, banks on their turn had a chance to disburse a credit. People took credits inconsiderate, self-confident believing that they would always have occupation, and wages would rise every year at a rapid speed, yet wages do not increase – people would take a loan again. After the Soviet times credits were mostly used to buy real estate, thus developing real estate market. The real estate market became unreasonable and not balanced with productivity (Rībele M., 2008).

In 2008 the rate of household crediting declined. On the one hand, time of cheap money has ended, when banks struggled for their market share and people could get a loan easy. Due to the world financial crisis the requirements to get loan in banks have become stiffer and loan interest rates – higher. On the other hand, bank clients have become more cautious and pragmatic, they calculate precisely, how much extra finance they need and what they can afford. Now credits are not taken just for taking. Latvian population does not expect rise of wages and incomes and, considering that they reduce the amount of money to repay credit. The decline in the number of sold new motor vehicles and long-term goods shows that many people have decided to be more modest (Ukenābele I., 2008).

Deferred payments and it consequences in business

Every business activity connected with the exchange of goods has a constitutive drawback – majority of settlements for contract item passes in a period of time for a certain reason. Using deferred payments, days, mostly weeks, but sometimes even months pass till the enterprise get its money. While merchandiser, producer or carrier of a service gives a credit for a customer in this manner, they have to manage without the money they have invested in the product development. Though a commercially active enterprise daily needs finances not only for maintenance of an enterprises, but also for the development. It pushes enterprises to take credit, and mortgage enterprise's property for further activity. If an honest debtor delays payments for objective reasons, the entrepreneur still gets his money. But sometimes the enterprise meets abuse of delayed payments that leads enterprises to chain reaction and delaying payments for collaboration partners.

The most dangerous in business is "blocking" of funds, because then it is not possible to take action. Business stops. Money today is more valuable than tomorrow.

Terms for paying accounts

The time when a seller determined the payment rules to the customer is a long past. Sellers are pressed to offer more beneficial conditions, but those sellers, who can not adapt to clients' needs, lose quickly and are thrown up from the game. Trade credit is one of the vital importance instruments in the battle of competition today.

Trade credit or deferred payments give client a chance to pay for goods or service not immediately, but in terms settled with suppliers or service providers. It improves the suppliers or service provider sales turnover, and strengthens their competitiveness in the market. In its turn the client gets a certain relief paying later. Businesses choosing liberal or conservative credit policy loose from outstanding debts, number of clients, turnover, competitiveness, and mostly profit.

Credit management is business action field contains all functions, decisions and problems connected with selling goods and service on deferred payment terms.

Credit policy shows how businesses try to reach credit management aims:
- reduce the number of unpaid cases and expenses of crediting;
- improve business liquidity;
- promote sales.

If credit policy is not settled, it can cause the following consequences:
- big amount of unpaid cases;
- too many funds are "blocked";
- unstable cash flow, and periodical problems with liquidity;
- credit terms do not stimulate or even prevent attraction of clients;
- development of cooperation with client is not promoted.

A client has the rights to demand the best payment terms and these demands increasingly are approved and implemented by goods and service sellers influencing the competition. Also the agreement for better payment terms can be the last stage in credit relationship cycle where "client is always right".

Intensified competition and aims of competitors to extend their number of business partners increases demands for better payment conditions of goods and services. Therefore the payment terms settled in contracts are prolonged – suppliers allow paying later, and thus prolonging the time of repayment unexpectedly long (Creditreform Latvija kredītmenedžmenta pētījums, 2006).

Terms of settlement of accounts in certain business field determines:
- competition between suppliers and customers;
- expiry date of goods;
- possibility to finance trade credit for goods or service seller's.

In 2007 the average payment term in contracts is 21.2 days after the delivery or performance of work, while in 2006 this figure was 19.8 days after the delivery or performance of work. Total payment duration in Latvia reached 45.1 days. The discipline of payment has substantially worsened compared with the period of 2000 – 2005, when the discipline of the payment increased.

Intrum Justitia survey shows that the payment duration on the European level compared with the
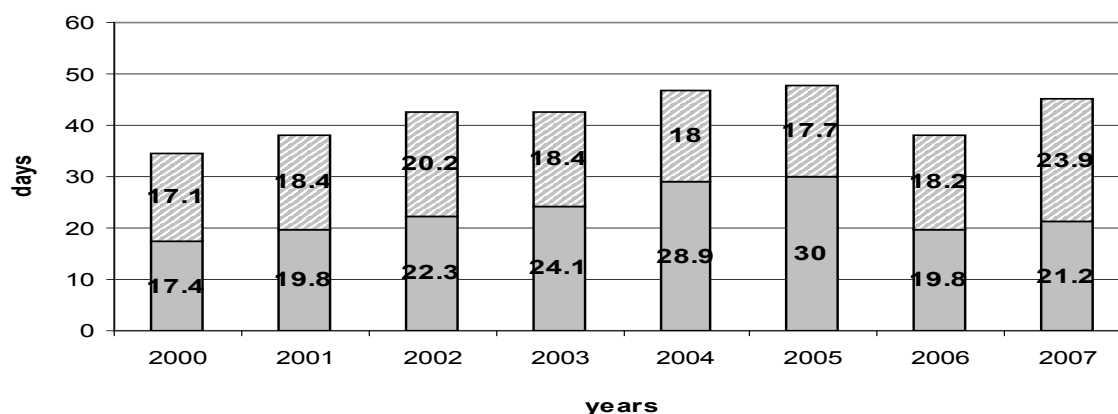
Source: made by the author using the data of Creditreform Latvia, Ltd

Figure 2. **Average payment terms in contracts and payment delays in Latvia
for the period of 2000 – 2007, days**

Table 1

Payment duration in Europe for the period of 2005 – 2007, days

Region Year	2005	2006	2007
Sweden, Norway, Denmark Finland	31.3	31.0	30.0
France, Belgium, the Netherlands	59.5	58.5	56.0
UK, Ireland	52.3	51.6	51.0
Germany, Austria, Switzerland	46.8	46.3	45.0
Estonia, Latvia, Lithuania	38.9	37.4	36.0
Portugal, Spain, Italy	91.5	91.1	91.1
Poland, Czech Republic, Hungary	44.8	45.5	45.0

Source: materials of the European payment index 2008, Intrum Justitia, 48 pages

previous years is 59.2 days in 2005, 58.6 days in 2006 and 55.5 days in 2007.

Prepayment proportion in agreed term of payment in Latvia has also grown in 2007 to 26.7 % from 19.4 % in 2006, considering that every business sector has different payment terms in contract in days after the delivery or performance of work, and the proportion agreed terms of payment.

The increase of prepayment in Latvia indicates that suppliers are worried for the number of invoices paid on time. So they insure themselves in getting money for goods or services, demanding prepayment in business operation, otherwise a customer will not get the goods or services.

Creditreform Latvia Ltd checks all enterprises entered in the Commercial Register, evaluating their solvency. The information shows that compared with 2007, when the coefficient of solvency risk of most

enterprises was medium, in 2008, a significant share of enterprises has low coefficient of solvency risk. Delayed payments today after some while (four or five months) mean insolvency, and lost of employment place, accordingly total decline of economic activity (Procevska O., 2008).

One possibility for creditors to return their funds is applying to the court. In the battle against the nonpayer, court is the last instance. In the past years the number of claims in debt recovery has increased by 137% compared with 2003. There was the Register of Debtors in Latvia to registry debtors, however it was incomplete, and it was followed by the Credit Register which started operation on January 1, 2008. The number of entered commitment and claims in courts is shown in Figure 4.

As it is seen in Figure 4, not all civil liability commitments related to legal and natural

Source: made by the author using the data of Creditreform Latvia, Ltd

Figure 3. **Prepayment proportion in the agreed term of payment in Latvia
for the period of 2000 – 2007, %**
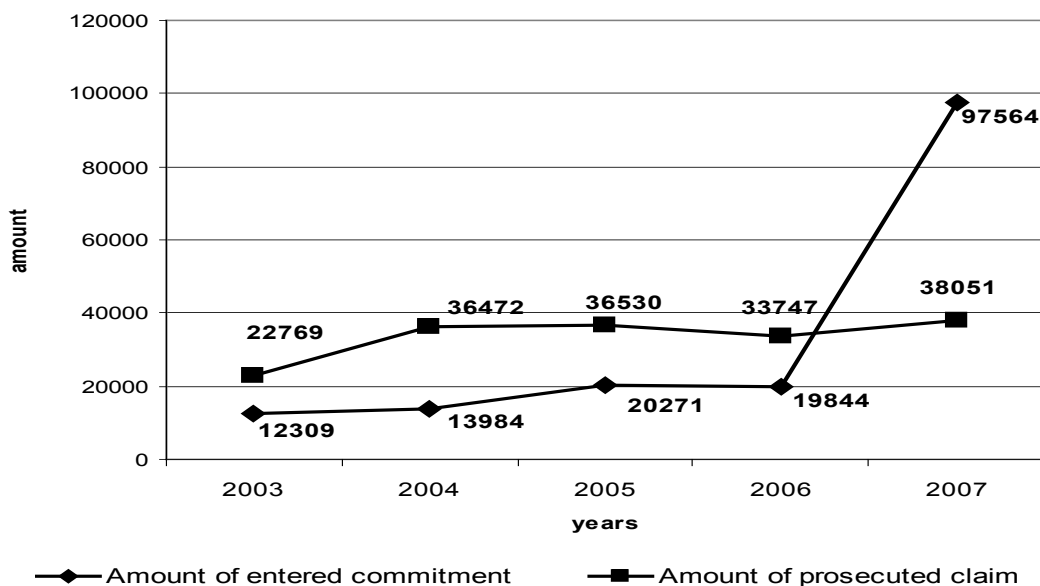
Source: made by the author using the Court information system, the data of Register of Debtors and Credit Register

Figure 4. **The number of entered commitment and sued claims in debt recovery in Latvia
for the period of 2000 – 2007**

entities in Latvia were entered in the Register of Debtors until 2008. Now when the Credit Register has started operation, the situation is clearer than before. On November 1, 2008 the number of entered commitment in Credit Register is 1 934 374. In the year 2008 the amount of sued claim in debt recovery equalled to 25 737 cases.

Between 2003 and 2008 approximately 11% of plaintiff actions have been satisfied already in court, closing them. 63% of plaintiff actions have been satisfied with a judgment of court.

It should be noted that requirements in debt recovery changes, also as the interpretation of the laws and regulations; whereby the debt collectors change

unhesitating contract terms to ensure a positive result in courts.

Conclusions

1. Credit can be a profitable use of one enterprise's free funds for the needs of another enterprise.
2. One of main reasons for experienced enterprises to feel the necessity for extra finances as current assets and capital assets is their willingness to expand business activities. Loans and credits are the most popular sources of financing.
3. The increase of interest rate in monthly payment structure can affect borrowers' paying ability, as the income of borrowers could decrease; besides they can be reduced by the influence of inflation, thus generating solvency problems for borrowers.
4. The most dangerous in business is "blocking" of funds, as then it is not possible to take action. Business stops.
5. Credit management is a business action field that contains all functions, decisions and problems connected with selling goods and services on terms of deferred payment.
6. In 2007 the average payment term in contracts is 21.2 days after the delivery or performance of work, while in 2006 this figure was 19.8 days after the delivery or performance of work. Total payment duration in Latvia reached 45.1 days. The discipline of payment has substantially worsened compared with the period of 2000 – 2005, when the discipline of the payment increased.
7. Prepayment proportion in agreed term of payment in Latvia has also grown in 2007 to 26.7 % from 19.4% in 2006, considering that every business sector has different payment terms in contract in days after the delivery or performance of work, and the proportion agreed terms of payment.
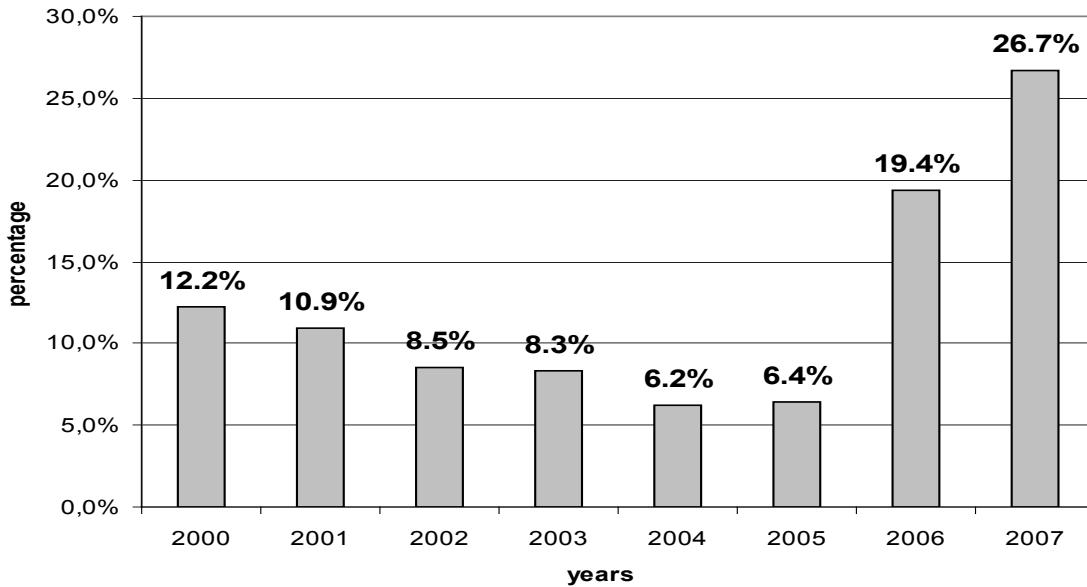8. Not all civil liability commitments of legal and natural entities in Latvia were entered into the Register of Debtors. Now when the Credit Register has started the operation, the situation has become much clearer.
9. Between 2003 and 2008 approximately 11% of plaintiff actions have been satisfied already in court, closing them. 63% of plaintiff actions have been satisfied with the judgment of court.
10. The interpretation of the laws and regulations as well as requirements in debt recovery changes; consequently the debt collectors alter unhesitating contract terms to ensure a positive result in courts.

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Agricultural Investment Decisions by Using Real Option Method - Theoretical Approach

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Abstract

During the recent decade there has been a powerful structural change going on in Finnish agriculture. Several small farms have ended production. Despite the fact that number of farms has been decreasing by significant amount, the indicators of total production volume do not show signs of decline. This fact implies that those farms, which have stayed in the business, have in many cases expanded their size by large scale investments.

The progress described above, gives the motivation for a study of farmers' decision making with respect to investments. In this study the decisions to invest are modelled by using a real option method. By this approach, it is possible to take into account some features that are absent in traditional Marshallian theory of investments, but that are often observed in real data.

One important aspect is that investment decisions are made in the environment of evolving uncertainty. Therefore, the opportunity to wait for new information before committing on irreversible investment alters the optimal behaviour. Uncertainty is modelled by assuming that the value of investment, or some variables affecting to that value, follow specified stochastic process.

The aim of this study is to develop realistic theoretical model for describing agricultural investments. This study is by nature theoretical one, but empirical econometric study will follow. The most essential result confirms the observation from the previous studies that uncertainty has large effect on whether farmer conducts the investment or waits for new information. This effect is considerably larger than, for instance, imaginable change in the interest rate.

Key words: investment, uncertainty, real option.

Introduction

During the recent decade there has been a substantial structural change going on in Finnish agriculture. Several small farms have ended production. This decrease in the number of farms has been most rapid among animal husbandry farms. Despite the fact that number of farms has decreased by significant amount, the indicators of total production volume do not show signs of decline in this respect. This fact implies that those farms, which have stayed in the business, have usually expanded their size by large scale investments.

The development of capital stock and the structural development of the industry are dynamic processes and should therefore also be studied by using dynamic models. In this study I will present the existing real option methodology and show how to apply these models to agricultural investments particularly in Finland. The essential idea behind real options is that decision maker has the option to wait for new information before committing on irreversible action.

Earlier studies

Dynamic modelling of investments initiate basically with adjustment cost literature of investments. For example, Eisner & Strotz (1963), and several papers from Abel (1983 & 1994) have developed optimal control models for representative firms to study investments on the macro level. Many of these models are deterministic and neglect potentially very important determinant of investments: uncertainty.

However, some adjustment cost models, like Hartmann's (1972), include uncertainty implicitly. In many of these models the increase of the price uncertainty boosts investments of risk-neutral decision makers. The explanation for this is that the increase in uncertainty makes the expected profits function more convex. The response of the decision makers can then be seen from Jensen's inequality.

McDonald and Siegel (1986) were among the first to note that in many cases firm considering irreversible investment in uncertain environment has a valuable option to delay the decision. Thus the standard net present value rule of investments is incorrect, because it does not take this option value

into account. When option value is accounted for, the test for the profitability of investment becomes much stiffer. Dixit and Pindyck have published several articles of real options. They summarize their work in very influential book Investment under Uncertainty (1994).

Turning attention to agricultural economists, Pietola & Myers (2000) investigated investment behaviour under uncertainty in the Finnish pork industry. They form dual dynamic model with adjustment cost for investment, which they also test empirically. They find that investments respond negatively to increases of uncertainty.

Lagerqvist's (2005) research deals with the issue of policy reform uncertainty and its effects on land investments. He finds that the lack of complete information causes inefficiency by inducing farm operators to over-invest before the reform date if they expect a reform that is likely to reduce their area payment.

Heikkinen & Pietola (2006) have studied the effect of income uncertainty to investment behaviour in Finnish agriculture and take milk production under investigation. They used mean reversing price processes. In principle, one should be able to test whether price process is mean reversing by using unit root tests. However, mean reversion is typically slow, and therefore hard to detect from short time series. Furthermore, the whole operating environment of Finnish agriculture has changed since Finland joined the EU and relevant time series of this period can cover one decade at the most.

Vercammen (2007) studies the effects of direct support payments. He finds that direct payments may increase investments, because they increase farmer's wealth and reduce the risk of bankruptcy. This effect is found to be stronger the longer the planning horizon of the farmer is. In addition, the effect is larger for farmers having medium level of equity, compared with those having either high or low level of equity.

Real options of investments

Investments are in many cases regarded as irreversible. That is, once the investment is made, the decision maker cannot get full amount of committed resources back if investment proves to be unprofitable. The degree of irreversibility varies among different kinds of investments. For example, in agriculture investments on buildings are perhaps the most irreversible, because alternative uses for those building are rather difficult to find. On the contrary agricultural machinery can be realized on market price quite easily, but there still exist the so-called lemons problem (Akerlof, 1970) in the market of used machinery that can create some degree of irreversibility.

In the context of Finnish agriculture real options fit best in modelling building investments. Further application would be the situation where a potential successor makes the decision concerning intergenerational transfer of the firm. That is, whether the successor continues farming or not, part-time or full-time. If one decides to exit, is it going to be done by selling, renting or perhaps reforestation and continuing as a forest owner. It can be assumed that exit by selling the farm entails considerable psychological cost. Several surveys of farmer's attitudes in Finland tell that being a farmer has other values besides economic value of the farm. One of the most important is the continuation of farming (here we are referring to my experience from a market research company, however, those surveys usually are not published). Farm may have been in the family for several generations and none of the generations want to be the last one. I think this cost should be accounted for also when modelling farmer's behaviour.

Another important form of agricultural investments, namely, buying arable land, is typically different by nature: the seller decides the timing of the deal. From the buyer's point of view it is now-or-never opportunity and consequently there is no option value for waiting. The set up of land transfer resembles first price auction. In addition farmland markets are very local as the costs of cultivating field parcels increase rapidly with the distance from farm core. Thus the deviations from average "trend" prices of land are likely to be allocated to differences in farmland demand. Results of Pyykkönen (2006) support this belief: he finds that important factors affecting farmland prices are farm density and especially animal husbandry farm density.

Model for building investment, example fattening pigs

McDonald and Siegel (1986) were first to develop a model answering to question: when will it be optimal to invest in irreversible project, which value follows GBM process. Following McDonald and Siegel (notation is the same as in Dixit & Pindyck, 1994) we can model the situation, where a farmer has an investment opportunity of value *F(V),* that is he can build a building for fattening pigs. Sunk cost of the investment is *I*. By paying this cost farmer gets a project worth *V*. Here I assume that this value refers to pure economic value of the project, the discounted expected profits:

$$V = \int_0^T e^{-rt}\pi dt ,\qquad (1)$$

where *r* denotes the discount rate and *t* stands for time. Uncertainty of the future profits comes from

fluctuations of meat price, national support payments (based on number of the animals) and production costs. However, in this model we will not try to track down these fluctuations to the basic variables.

When considering pig meat markets in Finland we might want to set industry equilibrium issues aside. We can assume that Finnish markets form only small portion of the EU total market and the decisions of Finnish farmers do not affect the price level. Assumption here is that the price level is determined by the EU inner markets and changes from there are directly reflected to Finland. However, it has been shown that option values for waiting exist also in the context of whole industry (Dixit & Pindyck, 1994).

1. Modelling uncertainty

In order to include uncertainty into the model it is assumed that the value of investment project or some more basic variable determining that value, such as meat prices, follows a known stochastic process. Geometric Brownian Motion (GBM) for random variable *x* is the most Much used continuous diffusion process in this context:

$$dx = \alpha x dt + \sigma x dz \qquad (2)$$

GBM is a special case of Ito process, where drift rate α and standard deviation σ are constants, and *dz* is the increment of Wiener process: $dz = e_t \sqrt{t}$, where random variable *e* is distributed standard normal and there is no serial correlation.

Whereas GBM process is suitable for describing continuous processes, such as development of prices, some other variables are better represented by different kinds of processes. Notably unanticipated policy changes are discrete. Simple process for this purpose is Poisson process:

$$dx = a(x,t)dt + b(x,t)dq \qquad (3)$$

where

$$dq = \begin{cases} 0, \text{ with probability } 1 - \lambda dt \\ s, \text{ with probability } \lambda dt \end{cases},$$

where *s* denotes the size of the jump (can be either fixed or random).

We are assuming that the project lasts forever and that the value of the project *V* follows directly GBM process. That is, we rule out adjustable inputs and temporary shutdown of the production. The agricultural support payments still coupled to the production are assumed to be included into *V*. This value *V* is uncertain and evolves according to combined GBM and Poisson process:

$$dV = \alpha V dt + \sigma V dz - V dq \qquad (4)$$

Potentially important determinant of agricultural investments in Finland is government financed investment aid directed to encourage structural development in agriculture. This aid consists of direct monetary support and state backed low-rent loan. In effect this aid reduces the cost of investment by some share *a*. relevant cost of investment therefore becomes $I - aI$. However, the level of investment aid is subject to policy reforms, and thus the future level of the aid is uncertain from farmer's point of view. Instead of writing down the relevant investment cost, I will assume here that the investment aid is also included into the value of the project $V = V_{market} + aI$, i.e., it increases this value. Then reduction of this aid results in reduction to *V*.

The assumption is that Poisson jump will be downward. This event corresponds to policy change affecting negatively to investment aid or to the direct support of pig meat production (i.e., support based on Articles 141 & 142 of the EU accession contract of Finland). Parameter λ is the Poisson mean arrival rate, so that the expected time until *V* takes the jump is:

$$E(T) = \int_0^\infty \lambda T e^{-\lambda T} dT = \frac{1}{\lambda} \qquad (5)$$

During the period of Finnish EU membership, there have been significant reforms to the EU agricultural policy on average every five years. In addition, national support system has been renegotiated with the Commission approximately every three years. Thus suitable values for *λ* could be in the region of 0.2-0.3.

Estimating the standard deviation of meat prices from most recent monthly data January, 2006-October, 2008 (Tike, Producer prices of meat and eggs, 2008) gives an estimate of 8%, whereas time series 1996-2007 of annual data gives 11%. Obviously, production costs, support payments and farmer's ability to react to changes in price ratios also affect the whole project's standard deviation. Let us take the standard deviation of 10% for the basic case.

It is assumed that Poisson shock and Brownian shock are independent from each other. This can be somewhat problematic in reality perspective: if price of meat would ever appreciate to the level that ensures good profitability, there would probably be pressure to lower the support level. In fact, Finland is entitled to national support only if the level of production does not increase. Good profitability would draw new entry or enlargement investments and reduce

the incentive to exit from the business thereby causing production to grow. On the contrary in the situation where price decreases to the level that produces negative profits, there is practically no way policy makers can enhance support level.

2. Real option model for investment problem

Decision maker's objective is to maximise expected value (here *T* denotes the time when investment is made):

$$F(V) = \max E\left\{(V_T - I)e^{-rT}\right\}$$

(6)

Dynamic programming can be applied to this problem. Here the Bellmann's equation in general continuous time form is:

$$F(x,t) = \max_u \left\{\pi(x,u,t)\Delta t + \frac{1}{1+r\Delta t}E\left[F(x',t+\Delta t)\big|x,u\right]\right\},$$

(7)

where maximisation is subject to decision variable(s) *u*. By rearranging we have:

$$r\Delta tF(x,t) = \max_u \left\{\pi(x,u,t)\Delta t(1+r\Delta t) + E\left[F(x',t+\Delta t) - F(x,t)\right]\right\}$$

$$= \max_u \left\{\pi(x,u,t)\Delta t(1+r\Delta t) + E\left[\Delta F\right]\right\}$$

,   (7b)

Dividing by Δt and letting it approach to zero we can write:

$$rF(x,t) = \max_u \left\{\pi(x,u,t) + \frac{1}{dt}E\left[dF\right]\right\},$$

(7c)

In the case of investment project Bellmann's equation simplifies, because there are no "dividends" and the only return comes from expected capital gains. So Bellmann's equation is:

$$rFdt = E\left[dF\right]$$

(8)

Applying Ito's lemma[1] (needed in differentiating Ito's process) to the term *dF*:

$$E\left[dF\right] = \alpha VF'(V)dt + \frac{1}{2}\sigma^2V^2F''(V)dt + E_s\left(\lambda\left\{F\left[(1-s)V\right] - F(V)\right\}\right)dt ,$$

(9)

Substituting this into Bellmann's equation and assuming that size of the jump *s* is fixed gives:

$$rF = \frac{1}{2}\sigma^2V^2F''(V) + \alpha VF'(V) - \lambda\left\{F(V) - F\left[(1-s)V\right]\right\}$$

$$\Leftrightarrow \frac{1}{2}\sigma^2V^2F''(V) + \alpha VF'(V) - (r+\lambda)F(V) + \lambda F\left[(1-s)V\right] = 0 ,$$

(10)

This differential equation has characteristic function *Q*:

$$Q(\beta) = \frac{1}{2}\sigma^2\beta(\beta-1) + \alpha\beta - (r+\lambda) + \lambda(1-s)^\beta = 0 ,$$

(11)

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[1] see Appendix 1 for short remainder for Ito's lemma

It can be seen that Q is nonlinear and has to be solved numerically.

General solution of the differential equation above is:

$$F(V) = AV^{\beta}, \qquad (12)$$

where A is a coefficient to be determined and β is the root of the characteristic function Q.

The solution of $F(V)$ has to satisfy the following boundary conditions:

$F(0) = 0$ (if F drops to zero, it will stay there after that)

$F(V^*) = V^* - I$ (the so-called value-matching condition)

$F'(V^*) = 1$ (smooth pasting condition)

We can see that when $V \to 0$ the term AV^{β} in our solution with negative root β grows without bound. The first boundary condition, however, excludes such case. So we can deduct that we are looking for the positive root.

Using value matching and smooth pasting conditions for determining A_1 we can find critical value for V^*:

$$V^* = \frac{\beta}{\beta - 1} I, \qquad (13)$$

This critical value tells us, when it is optimal to execute the investment option at once.

Since $\dfrac{\beta}{\beta - 1} > 1$ it must be that $V^* > I$.

It means the critical value V^* is larger than the direct investment cost I. We can find out how different parameters affect this value by comparative static analysis. Since different parameters affect via the value of the characteristic root β, we proceed by taking the derivative of the multiplier with respect to β:

$$\frac{\partial}{\partial \beta}\left[\frac{\beta}{\beta - 1}\right] = -\frac{1}{(\beta - 1)^2} < 0, \qquad (14)$$

Thus the increase in β decreases the multiplier $\dfrac{\beta}{\beta - 1}$, i.e., the wedge between the cost of investment and critical value V^*. Next we can see, how different parameters affect the value of β. Taking total differential from Q with respect to σ yields:

$$\frac{\partial Q}{\partial \beta}\frac{\partial \beta}{\partial \sigma} + \frac{\partial Q}{\partial \sigma} = 0, \qquad (15)$$

Reviewing each term separately we observe that $\dfrac{\partial Q}{\partial \beta} > 0$ (if β>1) and $\dfrac{\partial Q}{\partial \sigma} = \sigma\beta(\beta - 1) > 0$.

Then it must be that $\dfrac{\partial \beta}{\partial \sigma} < 0$, meaning that the increase in σ reduces the value of β. Therefore the multiplier $\dfrac{\beta}{\beta - 1}$ increases. Thereby the increase in σ (representing growth of uncertainty) increases the critical value needed to execute the investment.

Proceeding similarly with Poisson parameter λ we have total differential:

$$\frac{\partial Q}{\partial \beta}\frac{\partial \beta}{\partial \lambda} + \frac{\partial Q}{\partial \lambda} = 0, \qquad (16)$$

Now $\dfrac{\partial Q}{\partial \lambda} = -1 + (1 - s)^{\beta} < 0$ so that it must be $\dfrac{\partial \beta}{\partial \lambda} > 0$. That is, the increase in Poisson parameter (expected arrival rate of events) reduces the value of multiplier, and therefore increases investments. Interpretation of this is that more frequent downward jumps in project value make the value of waiting before investing smaller.

3. Numerical examples

By using specific values for the parameters we can study the properties of this solution. Let $\alpha = 0$, $\sigma = 0.1$, $\lambda = 0.25$, $\rho = 0.05$ and $s = 0.15$. Now the positive root of β is about 7.2. The value of multiplier is then 1.16. It means that the value of the project must exceed the cost of investment by 16%. Keeping other parameters unchanged, but giving σ the value 0.2 instead of 0.1, would result the root β be approximately 3.7. That would require V^* to be 38% larger than the investment cost. We see that the increase in uncertainty increases critical value dramatically. From these figures calculated from plausible parameter values, we can see that option value for waiting is quite remarkable even for agricultural investments.

The effect of "policy uncertainty" in this model can be found by using original values for other parameters, but giving λ value zero. In this case β has value 3.7 and the critical value needed is 37% larger

than the investment cost. We see that introducing policy uncertainty in the way done here reduces the excess of critical value from 37% to 16%.

4. Additional elements to the model

In the above model it was assumed for simplicity that project value follows specified stochastic process directly. We could also have built the model involving more basic variables. In particular, we could have assumed that the expected profits come from:

$$\pi_t = \left[P_t Y_t - C_t \right], \qquad (17)$$

where P_t denotes period t product price C_t production cost and Y_t the quantity produced. Now we may want to allow P_t and C_t to follow different processes. In addition, we may want that these processes are somehow correlated, which should be tested empirically. In addition, we must specify what happens in the situation when profits become negative. In farming business usually there is no option to temporary shutdown without considerable cost.

Furthermore, we can specify production function for Y_t. The idea here would be that farmer has the choice of variable inputs at each instant. When this kind of adjustment is possible, profit function becomes convex. This affects the way uncertainty contributes to the model: by Jensen's inequality, the expected value of a convex function increases with the increase in uncertainty. Thus uncertainty now has two opposite effects on investments.

Conclusions

This article is about theoretical models of real options and how to apply those to Finnish agriculture. Real option models propose that uncertainty is a larger determinant of investments compared with traditional models. We saw this was true with plausible values of parameters for Finnish agribusiness. However, introducing policy uncertainty by sudden negative jumps in profitability reduces the value of waiting. Therefore it speeds up investments.

As in the field of applied economics in general, my ultimate goal is to implement the model by econometric methods to real data. Attempts to explain aggregate investments by econometric models have not been very successful. Many studies have been based on standard net present value framework i.e. option value element has been ignored.

However, it is not an easy task to model irreversibility and effects of risk in econometric model. There may not be available data for variables that affect decision maker's perception of risk. In addition, requirements for the data are high if the aim is to model behaviour of individual firm.

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Appendix1: Ito's lemma (informal proof)

Assume the Ito process is in the form of

$$dx = a(x,t)dt + b(x,t)dz$$

Then any twice continuously differentiable function *F(x)* on the real numbers is also an Ito process. Expanding *F(x, t)* in a Taylor series we have

$$dF = \frac{\partial F}{\partial t}dt + \frac{\partial F}{\partial x}dx + \frac{1}{2}\frac{\partial^2 F}{\partial x^2}(dx)^2 + ...$$

and substituting for *dx* gives (omitting the arguments):

$$dF = \frac{\partial F}{\partial t}dt + \frac{\partial F}{\partial x}(adt + bdz) + \frac{1}{2}\frac{\partial^2 F}{\partial x^2}\left(a^2(dt)^2 + 2ab(dt)(dz) + b^2(dz)^2\right) + ...$$

In the limit as *dt → 0*, the *(dt)²* and *(dt)(dz)* and any higher order terms disappear but the *(dz)²* term tends to *dt*.

Deleting the *(dt)²* and *(dt)(dz)* terms, substituting *dt* for *(dz)²*, and collecting the *dt* and *dz* terms, we obtain

$$dF = \left[\frac{\partial F}{\partial t} + a\frac{\partial F}{\partial x} + \frac{1}{2}b^2\frac{\partial^2 F}{\partial x^2}\right]dt + b\frac{\partial F}{\partial x}dz$$

Analysis of the Cost Level and Production Efficiency at Agricultural Farms of Different Size

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Abstract

In the current economic situation when the market price ratio of agricultural products and production resources becomes unfavourable as well as due to standstill in the increase of the rate of subsidies, the necessity to reduce production costs per unit of production has become particularly topical for the agricultural sector. One of the most substantial criteria influencing the economic results of a farm is the scope of its economic activity. Correlation of costs towards production and structure of costs are investigated and parameters of efficiency at Latvian agricultural farms of different size are analysed in this paper, with the aim to study the economic efficiency of farms depending on their size.

The results of the study show that the structure of Latvian agricultural farms hinders using their potential for drawing income from agro-activity. Very small and very large farms are dominant in the farm structure, yet the analysis shows that the most efficient use of resources is at farms with the economic size between 16 and 250 ESU. The threshold of 16 ESU is substantial for the farm to be able to generate sufficient added value. Hence, in order to enhance competitiveness of Latvian agricultural farms, measures shall be carried out to increase the scopes of economic activity at the small farms. It would be useful to favour consolidation of separate small farms, thus facilitating efficient use of their resources. On the present conditions, the economic grounds for existence of small farms can only be in cases when the workforce used at them lacks alternative application. Some largest farms, on their part, could possibly work more efficiently, if they, just the other way round, were split up.

Key-words: costs, efficiency, economic size, specialisation.

Introduction

In order to have competitive agricultural sector of Latvia on the European Union (EU) and global market, efficiency of the use of resources in it shall not be lower than in the rival countries. Agricultural activity shall also be able to generate a sufficiently high value added in order to retain workplaces and income for the people employed in the sector. From 2004 to 2007, a lot of resources were made flow into agriculture, both through subsidies and rise in prices; consequently, income was growing, even not paying special attention to efficiency of the use of resources. The performed analyses indicate that insufficient attention was paid to economy of costs in recent years, resulting in increase of the specific weight of costs in the value of agricultural products; moreover, the specific weight of direct costs in the products is substantially higher in Latvia than in the EU on average.

For example, in 2006, the specific weight of costs in the value of products (without subsidies) in Latvia, according to FADN (Farm Accountancy Data Network) results, reached 104% compared with 97% in other Member States of the European Union situated in comparable weather conditions. Correlation of

costs towards the value of products is less favourable in Latvia than in Poland and Lithuania; hence, Latvian products are less competitive compared with the products of these states. The most unfavourable impact is caused by the high costs of fodder and energy, the specific weight of which in the value of products overruns two times the respective average level in other countries (A.Veveris…, 2007). The costs of fertilisers and seed material also substantially exceed the average figure. Approximate losses for this reason in the commercial sector of agriculture in Latvia are about LVL 1500 on average per farm, or altogether LVL 47 million in the whole sector (22% of the net value added). The specific weight of labour costs in Latvian farms in 2006 also exceeded the average figure of other EU states (European Commission (EC), 2008).

One of the most substantial criteria influencing the economic results of a farm is the scope of its economic activity. Therefore, a research was done to compare how materially the efficiency of the use of resources changes depending on the size of farms as well as to analyse the nature of changes in efficiency for different types of resources – workforce, capital investments, and intermediate consumption

resources. In this way, conclusions can be drawn about comparative efficiency of farms with different size by the main kinds of specialisation. This, on its turn, enables both the farmers and the policy makers to plan the desirable development directions of farms, taking into account the need for reduction of the costs of resources.

To evaluate more reasonably the contribution of the actual work, not only the costs of the paid, but also of the unpaid work are taken into account. In order to compare by objective considerations farms of various specialisation, the economic size expressed in European size units (ESU)[1] is applied in this paper as the unit of farm size.

Hypothesis advanced for the study: optimisation of the structure of farms is one of the most substantial ways for increasing efficiency of agricultural sector in Latvia.

The aim of this research is to explore efficiency of the use of production resources in Latvian agricultural farms of different size by the main kinds of specialisation.

Tasks of the research to achieve the aim:

1) to explore the structure of Latvian agricultural farms, and evaluate breakdown of farms depending on their size and specialisation;

2) to analyse the specific weight of costs in the production value, structure of costs, and parameters of efficiency in the selected groups of farms;

3) using the obtained results, to evaluate the strengths and weaknesses of different sized farms in efficiency of the use of resources.

Statistical data are used in this research – records of the Central Statistical Bureau (CSB) and FADN. **Methods** of economic analysis were applied – analysis and synthesis, the logically constructive method and the method of time-series.

Results and Discussion

1. Structure of the agricultural holdings in Latvia

On the whole, the structure of agricultural farms in Latvia is fragmented. In recent years, however, tendencies towards concentration are observed, manifesting themselves mainly in the following directions:

— the average size of farms increases, but the number of farms decreases;

— the number of specialised farms has grown in the livestock breeding branches, especially in the groups of dairy cattle and grazing livestock;

Table 1

The distribution of Latvian farms by type of farming in 2007 and changes from 2005

Type of farming	Number of farms		Number of employees in AWU		Total SGM	
	number	comp.by 2005,%	thou.	comp.by 2005,%	Mio LVL	comp.by 2005,%
Total	**113 382**	**85**	**105.5**	**78**	**265.2**	**138**
Field crops	30 757	72	20.9	72	88.1	140
Dairy farming	22 076	168	30.4	140	72.0	223
Grazing livestock	13 147	159	7.8	156	7.9	202
Permanent crops	3 255	68	1.6	100	2.1	68
Pigs and poultry	1 338	98	3.2	94	25.5	135
Horticulture	398	69	1.0	83	2.4	88
Mixed livestock	11 966	65	13.2	53	17.1	86
Mixed cropping	11 105	64	8.0	52	9.9	68
Mixed cropping and livestock	19 339	74	19.2	59	40.0	117
Share of specialised farms	63%	117	62%	134	75%	116

Source: Central Statistical Bureau of Latvia

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[1] 1 ESU corresponds to euro 1200 standard gross margin (SGM). SGM is a standardized value that is calculated for each kind of activity. It is calculated as production value minus direct production costs. For 2007 it is calculated using 2003-2005 years base.

–   the average gross margin per farm increases, but consumption of labour input decreases;

Division of farms by kinds of specialisation as well as depending on labour input and standard gross margin (SGM) is described by the data in Table 1.

Data of the structure of agricultural farms show that about 2/3 of agricultural farms in Latvia have in production of a specific type of product (not including mixed specialisations). Besides, the rate of specialisation has rapidly grown in the recent years – such farms comprised 54% of the total number of farms in 2005, and 63% in 2007. The specific weight of persons employed at specialised farms is also similar. However, these farms generate a remarkably larger part of the total gross margin – it was 75% already in 2007 (CSB, 2008). This shows that volumes are on the whole larger at specialised farms, and their role in agriculture of Latvia is very significant.

The most common kinds of specialisation in Latvia are field-crop farms (growing of cereals and oilseed crops) and dairy farming. Also important are farms with mixed specialisation, where a significant share is taken both by crop and livestock farming. Since 2005, dairy and grazing livestock farms developed most rapidly; their number has grown almost by 2/3, and their generated gross margin – more than 2 times. The number of all the other kinds of farms, for their part, has fallen; however, the gross margin has decreased only for the mixed (cropping and livestock) farms and for the permanent crops' and horticultural farms. It enables a conclusion that the latter two specialisations are actually shrinking, but the rest ones including the field-crops, and pigs and poultry (granivore) farms are developing, though their number decreases as well.

Taking into account the existing structure, three main groups of specialisation – crop cultivation, dairy farming, as well as pigs and poultry farms – are further evaluated in the study. In individual cases, also the mixed specialisation (crop with livestock) is dealt with as well as all groups of farms together.

The structure of the agricultural farm sizes is described by data in Table 2.

The shown scheme demonstrates that farms with the economic size up to 4 ESU are dominant by their number in Latvia – their specific weight is 90% of the total number. According to the EU classification they are deemed as very small. Medium small and medium size farms (4-40 ESU), on their part, comprise only 9%, but large and very large ones – 0.9% of the total number. Comparing the main kinds of specialisation, the specific weight of medium size farms is higher only in the dairy farming group. The most part of large and very large farms is among pigs and poultry farms – 3.9% as well as among field-crops farms – 1.75% (CSB, 2008).

Though the large and very large farms comprise a small part by their number, they produce a remarkable part of products. Their specific weight within the total SGM exceeds 40%. In 2007, they produced 58% of the total grain harvest, 84% of rape, 66% of meet, 32% of milk and 87% of eggs; besides, the specific weight of large farms within the production structure grows significantly year by year. Small farms, however, also take a substantial place – farms with the size up to 4 ESU represent 27% of the total SGM, but those up to 8 ESU – 36%. Farms with the size up to 8 ESU produced 66% of potatoes, 53% of field vegetables, 35% of milk, and 46% of beef and mutton in 2007. Thus it becomes evident that the structure of farms in Latvia is to some extent concentrated at both "ends" – large and small farms, while the medium size farms (8-40 ESU) falling by size under a family-owned enterprise, make up only 4% of the number of farms, and their specific weight in the total SGM is just 22% (CSB, 2008).

It can be mentioned for a comparison that on average most of farms in the EU are in the group of 4 – 8 ESU, but in the Western European countries where weather conditions are more similar with those in Latvia, farms are larger. In Germany and Great Britain, most of farms are in the groups of 16

Table 2

The structure of Latvian farms by groups of economic size in 2007

Type of farming	Number of farms in groups of economic size, ESU					
	Total	< 4	4,0-7,9	8,0-39,9	40 - 100	> 100
Total	113 382	102 157	5 614	4 604	671	335
Field crops	30 757	27 491	1 184	1 545	362	176
Dairy farming	22 076	17 739	2 258	1 829	201	49
Mixed (crops& livest.)	19 339	17 701	917	610	59	52
Pigs and poultry	1 338	1 220	29	38	11	41

Source: Central Statistical Bureau of Latvia

to 100 ESU, in Austria and in Belgium – 40 to 100 ESU, in the Netherlands – even above 100 ESU, and in Finland – 16 to 40 ESU. In Poland known by the large number of farms, the most often occurring group of economic size is 4 – 8 ESU. Only in Lithuania the structure of farms is similar to Latvia, but our neighbours are undergoing a rapid growth of average scopes of economic activity (EC, 2008).

2. Level of costs within different groups of farms in Latvia

In order to find out whether such structure of farms is optimal for Latvia from the economic point of view, return of costs has been analysed in the relevant groups of farms.

At present, the only representative source of information on the level of costs at different farms in Latvia is FADN. It covers the farms of the size from 2 ESU. Therefore the smallest farms, which produce 17% of the SGM and the number of which comprises 80% of the total number of farms (in 2007) are not included. It can be assumed, however, that indices of costs for these farms will be similar to the next size group included into FADN – from 2 t o 4 ESU.

Comparing the proportion of total costs with the output value in market prices (Table 3), it is obvious that the level of costs is close (in 2007 – 96.2%) of the value of output (in 2006 it even exceeded - 102%).

Out of all farms, exactly the smallest farms have the lowest specific weight of costs (91%), but the highest weight is for the medium small and the largest farms (100%). Within the groups of specialisation, results partly fluctuate (which is significantly affected by the level of efficiency of the farms included in the respective selection), but the trend is similar. Among pigs and poultry farms, in which the value of total costs exceeding output value (101.8% at average), the specific weight of costs initially even grows with increasing scopes of economic activity; at the largest farms, however, it is the lowest. It explains why the largest farms develop in these sectors. It should be added, however, that level of costs at the small farms is significantly affected by the fact that only actual costs (without calculated ones) are included in this table, and therefore consumption of the unpaid labour (will be discussed below) is not taken into account.

When analysing separate groups of specialisation, more attention was paid to the costs of fodder, energy and fertilisers, because their specific weight in the value of products is remarkably higher in Latvia than in the EU states on average. Particular analysis is done for labour costs, the role of which is more and more growing, and their volume and structure are substantially different depending on the farm size. In order to have objective and comparable data, this study deals with both the costs of the paid workforce and of the added unpaid labour.

Table 3

The share of total costs in output value in Latvian farms by specialisation and size groups, in 2007

Type of farming/ ESU	All size groups	2 -< 4	4 -< 8	8 -< 16	16 -< 40	40 -< 100	100 -< 250	>= 250
Total	96.2%	91.3%	91.1%	100.0%	94.6%	95.1%	96.8%	100.1%
Field crops	92.5%	83.5%	99.3%	98.3%	89.3%	91.4%	92.0%	94.9%
Dairy farming	96.1%	90.4%	88.2%	97.8%	95.8%	98.2%	100.4%	107.3%
Pigs and poultry	101.,8%	...	…	104.0%	109.1%	115.9%	…	100.5%

Source: FADN

Table 4

Share of some specific costs in production value at field-crops farms in Latvia, 2007

Type of costs/ ESU	Average	2 -< 4	4 -< 8	8 -< 16	16 -< 40	40 -< 100	100 -< 250	>= 250
Fuel	12%	15%	14%	20%	13%	13%	11%	7%
Fertilisers and crop protection	22%	7%	15%	18%	20%	23%	25%	25%
Wages paid	7%	2%	2%	6%	5%	6%	8%	12%
Labour costs, incl. unpaid labour	16%	67%	32%	27%	12%	9%	8%	13%

Source: author's calculations using the data of FADN

The following principal conclusions can be drawn from analysis of the farms within the three main directions of specialisation (Tables 4, 5 and 6).

The highest fuel costs are at the medium small farms (8 – 16 ESU), and with growth of their size, the level of costs decreases. Exception – the largest dairy farms, where the level again increases (Table 5).

The level of fodder costs does not differ substantially among dairy farms, except the largest ones, where it is the lowest. In granivore farms, the largest farms also have remarkably lower fodder costs. Costs of fertilisers and chemicals increase significantly with growth of the farm size, but in the major groups, the rise is not so fast.

The main differences between the large and the small farms are in efficiency of labour use and also in the nature of workforce. The small farms use almost the unpaid workforce only, but the large farms – the paid one. Therefore, the role of paid labour costs increases significantly with growth of the farm size. This process is particularly rapid in dairy farming. In order to provide an objective analysis of work efficiency, the unpaid labour should also be evaluated; the specific weight of the total labour costs is therefore also specified. When this item is included, we can see that consumption of labour is disproportionately big at the smallest farms if compared with the next ones by size. It should be noted here that consumption of labour per unit of production is even higher at the farms of the size under 2 ESU – below the FADN threshold (A.Veveris…, 2008). At the same time it is evident that the lowest specific weight of labour costs is in the group of farms from 40 to 100 ESU (in field-crop farms – to 250 ESU), but at still larger farms it rises again.

3. Economic results of farming in various groups of farms' size

The profit or the economic result is the leading indicator determining the efficiency of a commercial enterprise and its possibility to exist. Taking into account the specific nature of the sector, we will describe it using two parameters: the net value added (NVA) per unit of labour input (it describes efficiency of the economic activity and possible income of people employed in it) and the return to management against the contributed own capital. The given parameters included also the received subsidies.

The amount of the net value added per full-time employed person (Table 7) in various groups of farms differs 5 and more times, but in crop cultivation – even 10 times. With the economic size of farms growing to 40 ESU, the amount of NVA increases rapidly; then the rise gets slower, and at the largest farms in all even goes down; still, there are significant differences by kinds of specialisation: in crop cultivation (as well as pigs and poultry), the largest farms have the biggest

Table 5

Share of some specific costs in production value at dairy farms in Latvia, 2007

Type of costs/ ESU	Average	2 -< 4	4 -< 8	8 -< 16	16 -< 40	40 -< 100	100 -< 250	>= 250
Feed	35%	34%	35%	33%	36%	35%	37%	32%
Fuel	9%	13%	9%	11%	9%	8%	6%	9%
Wages paid	6%	0%	1%	3%	4%	8%	15%	26%
Labour costs, incl. unpaid labour	30%	91%	42%	22%	13%	12%	16%	26%

Source: author's calculations using the data of FADN

Table 6

Share of some specific costs in production value at Latvian pigs and poultry farms, 2007

Type of costs/ ESU	Average	8 -< 16	16 -< 40	40 -< 100	>= 250
Feed	54%	68%	59%	76%	53%
Farming overheads	12%	17%	19%	15%	12%
Wages paid	14%	4%	6%	10%	14%
Labour costs, incl. unpaid labour	14%	21%	13%	12%	14%

Source: author's calculations using the data of FADN

Table 7

Net value added per annual work unit by farming groups in Latvia, 2007, LVL/AWU

Type of farming/ ESU	All size groups	2 -< 4	4 -< 8	8 -< 16	16 -< 40	40 -< 100	100 -< 250	>= 250
Total	5 592	2 209	3 559	4 687	9 077	11 992	12 507	10 109
Field crops	9 053	2 212	3 469	4 752	10 768	15 485	16 148	21 154
Dairy farming	4 713	2 171	3 524	5 196	8 736	9 880	11 334	6 814
Mixed (crops&livest.)	4 813	2 258	3 418	5 570	9 888	9 723	9 041	7 060
Pigs and poultry	7 833	...	...	2 251	2 445	2 923	...	8 353

Source: author's calculations using the data of FADN

Table 8

Return to management per own capital in farm groups in Latvia, 2007

Type of farming/ ESU	Average	2 -< 4	4 -< 8	8 -< 16	16 -< 40	40 -< 100	100 -< 250	>= 250
Total	9.5%	-13.3%	0.9%	7.0%	20.1%	28.3%	27.4%	17.4%
Field crops	17.9%	-10.0%	-0.7%	7.2%	25.0%	32.8%	29.9%	27.0%
Dairy farming	7.1%	-15.5%	0.3%	8.0%	19.8%	23.4%	28.5%	18.9%
Pigs and poultry	6.4%	...	...	-6.6%	-7.4%	2.3%	...	6.5%

Source: author's calculations using the data of FADN

income, but in dairy farming, the income falls down substantially in this group. The highest NVA in dairy farming and also in all farms is in the groups from 40 to 250 ESU.

Taking into account that the average NVA of Latvian commercial farms (FADN farms can be at least partly considered as such) per unit of workforce falls behind the highest level in the groups of farms almost 2 times, Latvian farms can be regarded as being far from using their potential in drawing income from agro-activity. In most types of specialisation the results remarkably improve starting from 16 ESU, but in pigs and poultry farms, only the largest ones (above 250 ESU) have a sufficient rate of NVA.

Return to management is an important parameter from the owner's point of view. It shows the owner's return from the invested capital; therefore, the investor's interest to work in the industry depends on the level of the return to management. This parameter is calculated as follows: Output – total inputs + production linked subsidies – current taxes and duties + previous periods receipts + investment subsidies related to acc. year – income tax – remuner. to unpaid labour – return on own capital (LSIAE, 2008). The last two are the calculated items; hence, the result shows the net calculated return just from this business activity, taking into account alternative ways of using labour and capital.

The obtained results (Table 8) present very large differences of the return to management depending on the size of farms. In all the mentioned kinds of specialisation, the profit of farms with up to 4 ESU is negative, and from 4 to 8 ESU – near to zero. In the group from 8 to 16 ESU profit begins to appear (on average 7% of the invested capital), and its volume remarkably increases in the next two groups, reaching the best results in the groups from 40 to 250 ESU – 28%. But the return from the capital rapidly decreases at the largest farms, except crop cultivation and pigs and poultry groups. It is indicative of the most efficient use of capital at the large farms, and it also shows that optimal size of a farm depends on specialisation – it is larger for crop cultivation, and pigs and poultry, and smaller for dairy farming. However, it is important that no parameter of efficiency shows sufficiently good results for farms with the size under 16 ESU.

These conclusions, however, cannot be referred to all cases. Firstly, only the main kinds of specialisation are considered. There are various "niche" products, production of which can give good results also with small volumes, though in such case it would most probably be a collateral business. The economic size of at least 16 ESU would be needed to ensure at least one fulltime employment.

It should be noted that crucially different results are obtained if the unpaid remuneration is not calculated. In such case, the relative return to management even at the smallest farms would comprise 19%, which is near to the average parameter for all farms – 23%. According to this way of calculation, the

largest profit is also derived by the farms with 16-250 ESU, but at the group above 250 ESU, it is even less than at the small farms. It means that the economic ground for existence of small farms arises when the workforce employed there lacks alternative use, or in case the existing capital is not marketable. Such situation, however, cannot stay sustained, which is shown by the practice – the number of small (and also medium small) farms rapidly decreases.

Since the information used for calculations was obtained according to internationally accepted methods of FADN with the aim to provide its representation and builders of FADN have been working in Latvia for as long as 12 years, the reliability of calculations should be estimated as comparatively high. FADN uses accountancy data, which are examined during processing. However, taking into account the comparatively small sample (approximately 1000 farms) and the detailed division into groups, indices of separate sub-groups may not be fully representative. To avoid it, mainly the largest groups are used in this research, considering the principal kinds of specialisation and avoiding too detailed division; besides, in conclusions, the main trends are emphasised, which are visible rather clearly and are confirmed not only by the results of 2007, but also of the previous years.

Conclusions and recommendations

1. Very small farms are dominant by number in the structure of agricultural farms in Latvia, but they occupy an important place only in production of few products. Large and very large farms are dominant in production of a part of products, but the sector of medium size farms is comparatively underdeveloped.

2. A large segment of farms have specialised in a particular direction, and the rate of specialisation has rapidly grown.

3. Efficiency of the use of resources and financial results of farms remarkably improve with the farm reaching the threshold of 16 ESU. Smaller farms have very high labour consumption per unit of products, but other parameters of costs on the whole do not explicitly differ from the rest groups of farms. The structure of costs, however, is different – the lowest specific weight of fodder and energy costs is at the largest farms, but costs of fertilisers have an opposite trend. It is proved also by foreign experience, because in the Western Europe (except the south of the continent), farms with 16 – 100 ESU are dominant.

4. The farms of the size from 40 to 250 ESU have the highest net value added per unit of labour input as well as the return from own capital. In field-crops specialisation, best results are reached by the large farms, but in dairy farming the results are close to optimal already starting from 16 ESU. The largest farms (above 250 ESU), on their part, show on average lower economic results than the previous groups (with exception of pigs and poultry, and partly of field-crops specialist farms).

5. The results of the study enable a conclusion that the scope of economic activity is a very important factor in reaching good economic results and in appropriate use of resources, especially the labour force. In connection with rise in the labour force price, this problem has become topical, especially for the small farms where labour consumption is comparatively the largest one. Therefore, it is very important to increase the scopes of economic activity for these farms. One of the ways may be consolidation of farms as well as cooperation in order to load more appropriately the resources at their disposal, and to increase the scope of the resources and the market force.

6. At the largest farms (except pigs and poultry, and partly crop cultivation farms), the economic results are falling substantially, comparing with not so large farms. Therefore, it may be useful in separate cases to take steps for splitting up the largest farms, so that they were easier to be managed and more efficient.

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Kopsavilkums

Pa reizējā ekonomiskajā situācijā, lai nodrošinātu lauksaimniecības nozares konkurētspēju, īpaši aktuāli ir samazināt ražošanas izmaksas uz produkcijas vienību. Viens no būtiskākiem kritērijiem, kas to ietekmē, ir saimniekošanas apjoms. Tādēļ šajā darbā ir pētīta izmaksu atkarība no saimniecību lieluma, izmaksu struktūra, analizēti efektivitātes rādītāji galveno specializācijas grupu saimniecībās. Īpaša uzmanība pievērsta lopbarības un enerģijas izmaksām, kuru līmenis, saskaņā ar iepriekšējiem pētījumiem, Latvijā ievērojami pārsniedz citu valstu līmeni, kā arī darba izmaksām.

Pētījuma rezultāti rāda, ka Latvijas lauku saimniecību lieluma struktūra neļauj izmanot potenciālās iespējas gūt ienākumus no lauksaimnieciskās darbības. Saimniecību struktūrā dominē ļoti mazās un ļoti lielās saimniecības, taču kopumā efektīvākā resursu izmantošana ir saimniecībās ar ekonomisko lielumu starp 16 un 250 ELV, lai gan šis rādītājs atšķiras atkarībā no specializācijas – laukkopībā un cūkkopībā efektīvākās ir vislielākās saimniecības. Būtisks slieksnis, lai saimniecība varētu radīt pietiekamu pievienoto vērtību, ir 16 ELV. Līdz ar to, lai palielinātu Latvijas lauku saimniecību konkurētspēju, ir nepieciešams veikt pasākumus, lai palielinātu saimniekošanas apjomus mazajās saimniecībās. Lietderīgi būtu sekmēt atsevišķu nelielu saimniecību apvienošanos, sekmējot to resursu racionālu izmantošanu. Pašreizējos apstākļos mazo saimniecību pastāvēšanai ekonomisks pamats var būt vienīgi tad, ja tajās izmantotajam darbaspēkam trūkst alternatīva pielietojuma. Savukārt atsevišķas vislielākās saimniecības, iespējams lietderīgāk varētu darboties, ja tieši otrādi, tiktu sadalītas.

Role of Decoupling in the System of CAP Financial Support.
Dilemmas and Recommendations

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Abstract

The aim of this paper is to consider the role of decoupled payments in the agricultural policy of the EU. Firstly, the authors present the idea and history of decoupling in the EU and also in the United States. Further, on the basis of previous experience with decoupling, the authors attempted to answer some questions on social and economic legitimacy of decoupled payments. The authors of this paper also tried to analyse the system of direct support and mechanism of decoupling from the perspective of a "new" EU member state like Poland. Finally, they drew some recommendations for the future of direct payments system in the CAP.
Key words: decoupling, Health Check, CAP, direct support.

Introduction

The Common Agricultural Policy (CAP) of the European Union (EU) in the last fifteen years has undergone several important reforms pursuing to eliminate problems which appeared since it was established. These reforms set up some new adverse phenomena which called the validity of CAP into question, both outside and inside the EU. Growing concentration of agricultural support in a few beneficiaries disputes first of all its social legitimacy. On the condition of growing economic welfare and the sense of food security it becomes more and more difficult to justify the need of agricultural support. The CAP of the EU is strongly criticised also on the international arena, especially within the negotiations of the World Trade Organization (WTO). Therefore the need to improve agricultural policy in the EU in order to eliminate its adverse effects still exists. The "Health Check" (review of the CAP) was an important step in this direction. One of the most significant issues was the reform of direct support mechanism and further separation of direct payments from the current level and kind of production (so called decoupling). The "Health Check" deepened the range of decoupled payments and left the possibility to tie the level of support with current production only in the case of suckler cows, sheep, and goats. The message and role of the "Health Check" is, however, deeper than just the introduction of a few spectacular changes in the CAP. In fact, it is supposed to

prepare us for the next crucial CAP reform after 2013, which will include full decoupling as one of the most important topics. Total separation of the level of payment from the production seems to be reasonable from the economic theory point of view, for the transparency and justice of support system as well as for the expectations of the EU trade partners (Bryła 2008). Nevertheless, there are some economists and also some countries within the EU, who dispute further decoupling, and claim that there should be even stronger dependency between the level of payment and the level and kind of production.

The main aim of this paper is to consider the future of decoupled payments in the system of agricultural support in the EU. In order to achieve the set aim, firstly, we present the idea and history of decoupling. Further, some solutions for decoupled payments in the USA are compared with European ones. Finally, we draw some recommendations for the future of direct payments system within the CAP. The research method of our paper is based mainly on induction. We analyse effects of government intervention on the economic welfare. Then, we describe the history of decupling in chosen well-developed countries, and analyse the structure and dynamics of agricultural support with the use of Producer Support Estimates (PSE) and its components[1]. Finally, we lead a discussion about the advantages and disadvantages of decoupling in the CAP.

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[1] For more details of a PSE methodology see www.oecd.org.

1. The idea of decoupling

Traditional measures of agricultural support, related to the current level of output, input and price, widely used in developed countries cause some undesirable effects on the agricultural markets. First of all, they are the reason of sizeable food surpluses on these markets. Besides, since developed countries are economically strong as they hold a relevant share of international trade flows with agricultural products, measures of agricultural policy in these countries lead to price decline on the world markets and reduce export possibilities of developing countries.

Due to the fact that part of the support goes to unintended beneficent and does not eliminate the problem of income inequality, this policy is also very expensive. Figure 1 presents the consequences of the support measure related to the price on the example of government purchase.[2] On the condition of free market mechanism, price would reach P1 equilibrium level. For some reason this price seems to be too low for the government. In order to raise the price, the government buys a product on the market. Additional demand from the government (DG) changes the equilibrium price. If the government wants to keep the price at the level P2, it must buy additional quantity of the product (Q1 – Q2). As a consequence

of this action, the government spending rises not only because it must buy product from the market (dotted area) but also because it must pay for the storage and disposal. The government might get potential gains only if demand for this product rises from other than price change reasons or in a case of sudden surplus decline (i.e., because of the drought). Total effects of government purchase are: overproduction, higher consumer price and additional costs for government. The new problem is now how to dispose extra supply. If no possibility exists to sell the product on the domestic market, a country will try to export it. In case of a developed country this might have crucial consequences for the world agricultural markets and international relations.

Negative effects of payments related to current production (coupled) reduce their social legitimacy. As a result governments find it more difficult to convince societies to accept the necessity of supporting agricultural sector (Regidor 2008). One of the reasonable solutions for these problems seems to be an implementation of decoupled payments, which are not directly tied to the current level and kind of production. This kind of payments aims at transferring support to the farmers in a way it does not distort prices, production, consumption, and trade
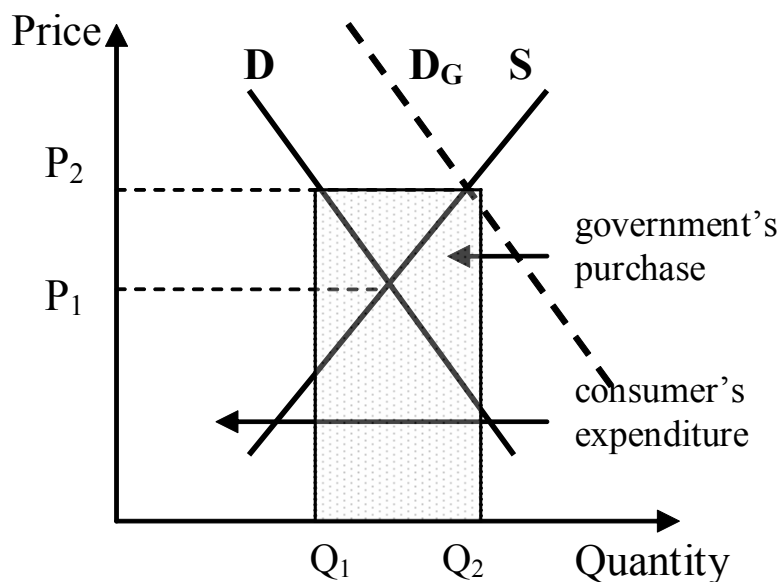
Source: Own elaboration based on (Tomek, Robinson, 2001)

Figure 1. **Economic consequences of government purchase measure**

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[2]   Measure of government purchase was commonly used in developed countries which in consequence lead to big food surpluses. In the 1980's the US had to face overproduction on the crop and milk markets, while the European Community had problems with surpluses on the wheat, beef, butter, milk powder, olive oil and wine markets. One way of solving this problem was to send the surplus to the least developed countries as food aid, which was widely introduced especially in the US.

flows. The idea is to base a direct payment on the historical area or level of production. If a farmer gets a payment not related to the current production, he may freely decide what to manufacture. As expected he will choose products which seem to be the most profitable. Therefore decoupled payments improve market orientation of producers, reduce distortions in supply and trade, are more environmental friendly, rise competitiveness of the sector, and improve effectiveness of support. However, the aim of decoupling is seen differently by the economists, politicians and negotiators of the WTO (Baffes, de Gorter 2005). Negotiators of the WTO and some of the economists treat decoupling as a way to equalise the competitiveness between the countries which support their agricultures and the ones which do not. Politician on the other hand see decoupling as an alternative form of supporting agricultural sector, which allows them to fulfil international requirements and keep the support at the similar level.

Decoupling of agricultural policy means its evolution towards the model where farmers' decisions do not depend solely on the level of support. The idea of decoupling consists of the policy reform in a way it does not disturb production and trade, but at the same time it keeps its properties of income retransfer. There are many different definitions of decoupling. In a narrow definition decoupled payments do not change decisions of producers and consumers in any way. It means that demand and supply curves remain unchanged after implementation of such payments. In a wide definition, the amount of supply and trade remains at the same level, however the demand and supply curves might evolve (OECD, 2001).

The influence of decoupled payments on the agricultural production is widely discussed. Some economists represent the view, that there will always be some connection between decoupled payments and farmers' decisions, because they raise land prices, change risk of production, reduce farmer's risk aversion, influence investment's decisions, change expectation of the future support policy, etc. A good example of this last one are actions introduced by the US government, which increased founds for agricultural sector in the Farm Bill 2002, and allowed farmers to update reference area for direct payments. After this experience the US farmers anticipate other similar actions, which may influence their current decisions concerning production.

Expectations of the future reforms or modification of the current policy may encourage farmers to increase production or purchase some extra land (Goodwin, Mishra, 2006). Direct payments, which are supposed to be decoupled, might also discourage farmers from leaving the sector. Otherwise they would decide to stop production and move their resources to other sectors (Chau, de Gorter, 2000). Decoupled payments may also improve creditworthiness of farmers. Furthermore, better financial liquidity reduces costs of credit required for production, which together with declining propensity of consumption in conditions of income growth, is a good investment incentive (Roe, Somwaru, Diao, 2002; Sumner 2005). It is also often emphasised that direct payments, even if they are decoupled, limit production risk mainly through the reduction in the variability of returns (insurance effects) and the reduction of farmers' risk aversion (wealth effects). P. Sckokai i J. Anton (2005) in their research prove that direct payments in the EU have more significant positive influence on extending the farm size than the equivalent price support. It is an important question, if one can speak about the decoupled payment, which would not influence farmers' decisions at all, that is which would fulfil the narrow definition of decoupled payment. It seems to be more reasonable to talk about the level of decoupling instead of measures not related to the agricultural production at all.

2. Experiences with decoupling in the European Union and the United States

The first serious attempt of decoupled payment implementation was noticed in 1949 in the US in the so-called Brannan's Plan. The idea behind it was that a farmer, whose income falls down below a certain level, gets an extra payment. However this solution was rejected by the US Congress. Afterwards, in the Farm Bill of 1985 deficiency payments were introduced. They were based not on the current yield but on the historical one. Decoupling in wider scope was implemented for the first time in 1996 as a crucial element of the next agricultural act (so-called FAIR Act[3]). It aimed at changing agricultural policy in the US accordingly to the requirements of Uruguay Round Agreement on Agriculture. The government's engagement in agricultural markets and traditional measures of agricultural policy related to current production was reduced. Market price support and deficiency payments were partly replaced by the

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[3]   FAIR Act – Federal Agriculture Improvement and Reform Act

system of direct payments PFC[4] based on historical area. In order to join the programme, a farmer had to be enrolled in programmes of previous Farm Bill for at least 5 years. Payments were paid to the 85% of eligible area, thus the amount of payment was not related to the current production[5]. These payments were paid yearly in previously agreed declining amount by 7 years until the next act in 2002. The FAIR Act 1996, however, introduced also MLA payments[6.] MLA programme was a system of preferential loans granted to farmers for 9 months. These payments were available in situation when market prices were below the intervention price - that is below loan rate. MLA payments were supplementary to the PFC payments and had an ad hoc character. In 1998 prices of agricultural product fell down, which caused a strong growth

in MLA use. As a result many doubted if the PFC programme fulfilled the assumption of truly decoupled system.

The next agricultural act Farm Bill in the US was introduced in 2002[7]. This act was a surprise for many, because it was opposite to what the US had officially declared on the global arena during the WTO negotiations. Instead of reducing support for agriculture, it increased budgetary expenses on it. Although many programmes of the Farm Bill 1996 were continued (especially direct payments PFC), new forms of support related to current production and introduction of prices were introduced (Czyżewski, Henisz-Matuszczak 2006). In case of PFC payments, farmers were allowed to update reference area or yield, which stands in contradiction to the idea of decoupled payments.

Table 1

Structure of agricultural support in the US in the years 1986-2007 (in million USD)

	1986-88	1989-92	1993-95	1996-98	1999-01	2002-05	2006-07
Value of production	143 468	168 558	184 239	199 990	190 329	218 306	278 380
TSE	64 136	71 761	75 806	81 053	97 993	98 802	100 088
PSE in it:	36 958	33 791	28 366	35 873	53 685	40 451	31 761
market price support	13 639	16 632	13 481	16 557	18 912	11 558	9 006
budget support based on :	23 316	17 156	14 882	19 314	34 771	28 890	22 755
output	2 918	510	241	1 546	10 032	4 435	1 183
area or animal number	11 312	6 896	5 396	1 247	3 063	5 762	2 521*
input use	7 061	7 233	6 750	6 850	7 774	8 191	9350
historical entitlements	0	0	0	6 647	10 069	5 579	7380 *
input constraints	1 114	1 774	1 976	2 071	1 891	2 844	2320 *
overall farm income	911	743	519	953	1 942	2 079	-*

* The methodology of PSE (Producer Support Estimates) has been changed since 2006. Payments based on area or animal number are now in the majority classified as the payments based on the current area or animal number, receipts or income; production required. Payments based on historical entitlements can be identified with payments based on non-current area or animal number, receipts or income; production not required. Payments based on input constraints are now included in payments based on non-commodity criteria. Payments based on overall farm income are now included in payments based on non-current area or animal number, receipts or income. That is data from the last column (2006-2007) are not comparable with the previous one. For more details of a new PSE methodology see www.oecd.org.

Source: Own elaboration based on OECD 2008

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[4] PFC – Production Flexibility Contract. At the beginning these payments were called AMTA because of the name of the one of the parts of FAIR ACT - Agricultural Market Transition Act Payments. Since 2002, however, they have been called direct payments (Ahearn, El-Osta, Dewbre, 2006).

[5] In the FAIR Act it was only specified that on the area with PFC a farmer can produce corn, sorghum, wheat, oats, barley, cotton or rice.

[6] Market Loss Assistance

[7] The proper name of the Farm Bill 2002 is Farm Security and Rural Investment Act of 2002 (FSRIA).

The new reference yield was an average yield from years 1998-2001, which means that payments in 2002 were directly related to the production from previous year (Czyżewski, Wawrzyniak 2003). Influence of the Farm Bill 1996 and 2002 on the structure of budgetary expenses for agricultural sector in the US is presented in Table 1. Support for agricultural producers (PSE) can be divided into two kinds: market price support (result of intervention prices and trade barriers) and budgetary support. Payments based on output and input use can be classified as a coupled support. Payments based on area or animal number, input constraints and overall farm income are kind of support, which do not distort supply and trade as much as coupled payments and can be called partially decoupled. Whereas payments based on historical entitlements have typically decoupled character. It can be noticed in Table 1 that the FAIR Act of 1996 changed the structure of budgetary support into more decoupled, which resulted in the sudden growth of payments based on historical entitlements (USD 6.6 billion on average in 1996-1998). The increase of MLA use in 1998 and following changes in agricultural policy introduced in the Farm Bill 2002 caused, however,

that current agricultural support in the US is less decoupled as it used to be in 1996.

In the European Communities it had also been noticed that agricultural payments related to the current production had many adverse effects. In 1986, Mansholt proposed introduction of first measures, which can be called decoupled. The idea was to grant special rents for older farmers in order to encourage them to retire. This plan, however, was not implemented. An important step into direction of more decoupled payment system was made in 1992 during the so-called MacSharry's Reform. Intervention prices had been replaced by the compensatory payments. Still, it was not a full decoupling, because in order to get a payment, farmers had to cultivate crops on the eligible area. The amount of payment was related to the kind of production. Furthermore, payments in the EU were based on an aggregate fixed area, which was set at the national or regional level. Individual farmers did not have a base area. They were just owners of eligible hectares, for which they received payments. If the regional base area was exceeded, the subsidy per hectare was adjusted proportionately for all farmers in the region. Because the reduction in payment

Table 2

Structure of agricultural support in the EU in the years 1986-2007 (in million EUR)

	1986-88	1989-92	1993-95	1996-98	1999-01	2002-05	2006-07
Value of production	211 407	230 899	220 540	240 668	242 278	259 776	298 510
TSE	104 183	102 207	105 365	109 773	111 842	118 639	115 661
PSE in it:	90 924	85 708	93 410	97 000	99 475	105 718	101 090
market price support	78 791	65 944	59 851	55 938	56 522	53 974	38 611
budget support based on :	12 108	19 396	33 375	41 541	43 536	45 553	62 575
output	4 525	5 552	2 483	3 364	3 851	3 939	1042
area or animal number	2 415	5 607	19 706	24 936	25 863	26 980	16 840*
input use	4 525	6 260	7 216	7 680	7 717	9 551	11 649
historical entitlements	0	449	1 179	852	611	5 083	31 589 *
input constraints	643	1528	2791	4 709	5 494	6 459	1455 *

Notice: Data are not fully comparable because of the process of the EU integration.

* The methodology of PSE (Producer Support Estimates) has been changed since 2006. Payments based on area or animal number are now in the majority classified as the payments based on current area or animal number, receipts or income; production required. Payments based on historical entitlements can be identified with payments based on non-current area or animal number, receipts or income; production not required. Payments based on input constraints are now included in payments based on non-commodity criteria. Payments based on overall farm income are now included in payments based on non-current area or animal number, receipts or income. That is data from the last column (2006-2007) are not comparable with the previous one. For more details of a new PSE methodology see www.oecd.org

Source: Own elaboration based on OECD 2008

occurred ex post, farmers had a strong incentive to overplant to maximise their share of fixed budget outlays or to defend against overplanting by other farmers. This proves that the area payments were coupled to planting because individual farmers were not punished for the decision to overplant (Baffes J., H. de Gorter, 2005).

Despite the fact that implementation of direct payments in MacSharry's Reform was definitely a step forward, the size of food production in the EU was still much higher than it would have been without any support. The first "true" decoupling was introduced in the CAP Reform from 26 June, 2003 in Luxembourg. The new system of direct payments was called SPS[8], and depending on the chosen variety (historical or regional) farmers received either Single Farm Payment (SFP) or Single Area Payment (SAP). Payments in the SPS were generally independent from the current production, unless there was a risk of abandonment of agricultural activity in some specific regions[9]. This gave farmers a free hand to decide about the land use, as long as it would be an agricultural use.

New Member States implemented simplified SAPS[10] system. In this system a payment received by a farmer consists of single area payment, which is decoupled and complementary national direct payment, which is related to the production. Implementation of a new direct payments system, in which amount of payment is not related to the size and structure of production makes, that accordingly to the WTO requirements, direct payment of the EU could be now classified into "green box" (Buckwell 2008). This fact has a crucial meaning in the light of developing countries' demands to reduce agricultural support and total elimination of "blue box"[11]. Ipso facto, the EU ensures itself the possibility to continue the agricultural support at the same level and not to break the WTO rules at the same time.

In the last CAP review called "Health Check" the dimension of decoupling has been expanded. Specific payments are now available only for suckling cows, sheep and goats. Impact of the above described reforms on the structure of budgetary support in the EU has been presented in Table 2. It can be clearly seen, that the level of support after the 1992 reform remained more or less the same. The structure of this support, however, changed significantly. Market price support declined in favour of payments based on area or animal number, which represent direct payments. The reform of 2003, in turn, caused significant increase in value of payments based on historical entitlements, which represent decoupled SPS payments. It can be noticed that CAP of the EU evidently evolved from the support being passed through the market, to the partially decoupled support (MacSharry's direct payments) and finally to the totally decoupled SPS payments.

3. Future of decoupling in the system of financial support of CAP

As presented above, decoupling was implemented in the EU in 2003. Member States, however, were allowed to couple part of payments and most of the "old" EU countries used this possibility. One can observe that generally in the EU there is an eagerness to fully decouple all direct payments and "Health Check" proves it. A few countries, however, are against further decoupling and even demand the comeback of more production related payments. During the works on the new CAP reform, the future of direct payments and the range of decoupling will play an important role. The main questions which had to be answered are as follows (Bryła 2008):

- Is the idea of decoupling compatible with the aim of keeping agricultural activity on the whole area of the EU? Is there not a threat that the farmers may resign from production, especially in the mountain areas?
- Is the decline of food production in the EU a desired effect of decoupling in the light of latest food shortage in many parts of the world?

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[8]   Single Payment Scheme.

[9]   Member States were allowed to use specific payments in order to sustain certain kind of production on some areas. For example, a farmer could get a payment as an incentive to continue a production important from the environmental point of view. At least 75% of crop payments and 50% of beef and sheep payments had to have a decoupled character. This possibility was fully used by France, where around 30% of direct payments were coupled - that is nearly EUR 2 billion. Only England, Germany and Ireland entirely decoupled their direct payments.

[10]   Single Area Payment Scheme.

[11]   WTO divided measures of agricultural policy into three boxes depending on their impact on trade and production. The measures distorting trade and production the most were classified into "amber box". The measures from "blue box" do not distort trade as much, and are based on historical area or output. The measures classified to "green box" are not supposed to distort directly trade and production at all.

− Is it socially welcome that farmers may change the logic of thinking from producers to pensioners, who will not concentrate on farming but on receiving payments and competing for more rights?

On the one hand, supporters of decoupling demand total independency between payments and production, and underline positive impact of such policy on European agriculture and its competitiveness on the international arena. Decoupling discredited set-aside duty and reduced the costs of administration. Breach with the obligation of keeping animals or producing crops in order to get a payment, enabled structural changes in the food production, especially in the "new" member states. Full decoupling provides the possibility to fulfil the WTO agreements and to keep similar level of support at the same time.

On the other hand, decoupled payments are not free from drawbacks. These payments are usually related to the possessing of land, and therefore they may increase land price. Moreover payments are transferred to people who are land owners but not necessarily farmers. What is more, decoupled payments were implemented to solve problems caused by past policy, so they are based on old assumptions. They preserve existing inequalities between markets, countries and farms. What is then social and economic justification for this kind of support? Are decoupled payments harmonious with the contemporary aims of the CAP: competitiveness, social balance, environment, biodiversity, culture heritage, rural area development, food, and energy safety? Direct payments, even decoupled ones, do not fulfil these assumptions because they result from the past policy and past problems. In a situation, when governmental support is required, it should have clear aims and specified beneficents. From the social point of view, every help from the government should stimulate changes instead of preventing them. Decoupled payments preserve old state. Implementation of cross-compliance also does not solve this problem. Would not withdrawal of old measures and implementation of new, better suited ones be a reasonable solution?

Nevertheless, the range of decoupling and future of direct payments are going to be hot topics during incoming talks on the next CAP reform. It will be conducted in the conditions of high food prices, expected depreciation of US dollar, high volatility of oil prices and financial or even economic crisis. Preserving the environment and landscape may not be any more a sufficient justification for continuing agricultural support. Maybe it is time to put the emphasis again on food security? Maybe the new agricultural policy of the EU should be called Common Food and Environmental Policy?

As far as "new" member states of the EU are concerned, there is a consensus that a system of direct payments should remain as a basic idea of CAP. The question is not if to support agriculture, but rather how to do it? Some differences in views concern decoupling. Although there support for full decoupling prevails, some of the "new" member states represent an opinion that decoupling should be implemented gradually and on the same basis in all member states. Another claim is crucial to maintain at least some measures related to production in case of sudden decline of supply and economic or food crisis. Such measures should work as a safety net for the agricultural sector. One must remember also about another very crucial argument in the discussion about the future of CAP. Agricultural sector in "old" member states had been supported for many years, at the beginning through market price support and later through coupled direct payments. It had the possibility to evolve and become more competitive. Full and based on the same rules decoupling in all member states would preserve the current level of support, which is much higher in "old" member states. It is mainly because reference yields in these countries were higher. It would be advantageous for "new" member states to update all reference yield and then to decouple all direct payments. Besides, farmers in "new" member states should be given a chance to adjust to operate on the Single Common Market. One should remember that many of them took credits and started investments. Without coupled payments, in the situation of sudden price decline, these farmers will not be able to repay their debts.

Poland seems to be a good example of this situation. Current system of direct payments deepened lasting several years crisis in production of pasture-based livestock (beef and sheep). After withdrawal of milk quotas, milk cows might require similar specific support as beef and sheep have now. Without coupled payments development chances for pasture-based livestock production are rather small. These farms might never be competitive on the Single Common Market. Thus the possibility to use specific payments related to the production should remain regardless of the adopted system of payments (SPS, SAPS or any new system implemented after 2014), although this view stands in contravention to the current Commission's opinion.

Conclusions

1. One can notice some crucial changes in the structure of support for agricultural sector in

developed countries in the last twenty years; however the level of this support remains more or less the same. Measures of border protection and price support are being replaced by direct support which becomes more and more decoupled. Especially big progress has been made in the EU, first, by the implementation of compensation payments during MacSharry's Reform, and later by separating them from the current production during the CAP Reform of 2003.

2. The idea of decoupling seems to be reasonable from the point of view of international food markets, especially developing countries. It limits distortions in trade and production caused by the agricultural policy of developed countries, and reduces food price decline observed on the world markets.

3. There exists, however, the question about the social legitimacy of decoupling and if it is possible at all to implement a measure, which would be fully decoupled in the understanding of a narrow definition of decoupling. What is more, if a policy consists of both coupled and decoupled payments, this first group reduces then effectiveness of this second one. Experiences with decoupling in developed countries show how hard it is to create an efficient decoupled system of support.

4. More and more often it is being indicated that decoupling do not accomplish aims of CAP, because it is not oriented to solve given problems, but just preserve dilemmas of the past. Future CAP reform is going to be a challenge for all member states. The role of decoupling in a new agricultural policy of the EU seems to be unsure. Decoupling was a key word of the last CAP reform; this time targeting might be this word.

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Absorption of Structural Funds in Poland within the Context of Information Society Development on Rural Areas

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Abstract

The paper describes the results of analysis for the applications of the European Union financial instruments in the execution of actions performed within sectoral operational programmes aimed at the development of the information society, with the specific inclusion of rural areas. The effectiveness of activities in the area of development of the information society is determined by the IT level indicators such as: computer hardware availability, Internet access, IT skills of citizens, access to public services provided electronically, etc. Following Poland's accession to the European Union there has already been some progress in the development of the information society which is seen in: the growth in the number of rural households having computer equipment (up by 21%) and the increase in the households with Internet access (by 14%). Structural funds like the ERDF, the ESF, and the EAGGF have significantly contributed; however, the level of their absorption is unsatisfactory. The majority of projects approved for the years 2004-2007 were low-budget ones, poorly innovative and having a local appeal. Beneficiaries of such projects were focused on satisfying their primary needs relating to the purchase of hardware and software. For elimination the 'digital divide' between urban and rural areas more financial and organisation efforts are needed in the field of IT education towards rural area inhabitants, which would be prepared to use actively the possibilities that the information society brings about.
Key words: absorption of the Union funds, information society, rural areas.

INTRODUCTION

In Europe the idea of the information society has become one of the ways of catching up with the United States in their economic development. The notion of the information society was used for the first time by the European Union in the Bangemann Report. According to the authors of the report, the information society may be created as a result of the revolution based on information and technological development allowing processing, gathering, and transmitting information in any form (verbal, written, and visual) regardless of the distance, time, and size. The financial resources provided by the private sector and market mechanisms were meant to be the basis for developing the information society, while the public sector should focus on legal regulations, the protection of citizens and consumers, and enhancing the awareness of society (Raport Bangemanna 1994). Since then, the notion of the information society has evolved into different realms, starting with an information-based economy and the idea of common access to information technologies. For the purposes of this paper the definition of the information society provided by the Polish Office of the European Integration Committee has been adopted: "The information society is a new type of society that has been developed in countries in which the development of modern information technologies has reached a very high rate. The primary conditions that must be satisfied under which a society may be recognised as the information society include an extensive modern telecom network, the range of which would cover all the citizens, and extensive information resources that are publicly accessible. Education of the society towards further development, so that everyone could make full use of the possibilities offered by the means of mass communication and information is also an important aspect" (Nowak J. 2004).

In Poland, the directions of developing the information society were set by *ePoland the Strategy on the Development of the Information Society in Poland for the Years 2004-2006* adopted by the Council of Ministers on January 13, 2004. The major goal of the strategy was the creation of a competitive economy, based on the knowledge and improvement of the living standards of citizens through effective information in the areas of:

- common access to electronic content and services – ensuring common, safe, and broadband Internet access;
- development of broad and valuable content and services accessible electronically – ensuring public content that is of value for the potential user, from simple pieces of information to

services which require interaction between the consumer and the provider;
— stimulating the ability to use the electronic content – requiring both adequate computer skills and overcoming a mental barrier (ePolska…2004).

The purpose of the paper is to assess the absorption of the European Union financial instruments in the execution of actions performed within sectoral operational programmes aimed at the development of the information society, with the specific inclusion of rural areas. The research material has been derived from the information on projects completed in the years 2004-2006 taken from the Internet database EU Subsidy Map (Mapa dotacji UE), statistical data of the Polish Main Statistical Office (GUS) on the use of telecom and IT technologies in households, and from reports and summaries on the execution of operational programmes. The research has employed descriptive statistical methods, comparative analysis, and general conclusion methods (induction and deduction).

Results and Discussion

Undertaken in the years between 2004 and 2006 activities towards the development of the information society primarily focused on areas like: development of the telecom and IT infrastructure, development of the public administration electronic content, development of public services in an electronic form; educational and promotional efforts, development of the legal environment; and co-ordination of work over the IT development of public administration.

Operational programmes included into the National Development Programme, adopted by the

Council of Ministers in January 2003, had a major impact on the development of the information society in Poland. The development of broadband Internet access was carried out within the Integrated Operational Programme of Regional Development under Measure 1.5 "Infrastructure of the Information Society". This activity was supported with PLN 355,666,610 allocated from the European Regional Development Fund (ERDF). The European Social Fund (ESF), available under the Sectoral Operational Programme - Improvement of the Competitiveness of Enterprises, was the second source of financing projects related to the development of the information society in Poland under which Measure 1.5 "Development of the Access System for Enterprises to Information and Public Services On-Line" was indicated, for which PLN 312,904,349 were allocated from the European Union funds. Table 1 presents the values of the implemented contracts and payments in the years 2005-2007 and the extent of the absorption of the European Union funding allocated to support such measures.

Investments into the infrastructure of the information society were primarily made by marshal's offices (34% of the entire Measure 1.5 of the Integrated Regional Development Operational Programme) and city halls (23%), while rural boroughs completed projects, the value of which accounted for a meagre 4% of the overall budget. In a few voivodeships the marshal's office acted as the leader of an accord of local governments (rural boroughs included), and as such became a party to the contract with the voivode. It does not change

Table 1

The EU funds absorption in selected activities towards the information society development (in PLN)

Specification	2005	2006	2007	Degree usage/ summary
1. SOP Improvement of the Competitiveness of Enterprises				20.6%
Value of project covered by contracts in financing	454,211,877	331,985,445	301,790,839	1,087,988,161
Value of effected payments	0	14,709,922	49,635,034	64,344,956
2. The Integrated Regional Operational Programme				65.5%
Value of project covered by contracts in financing	206,292,183	364,815,757	360,294,521	931,402,461
Value of effected payments	11,858,133	70,706,997	150,272,219	232,837,349
Total value of contracts projects	660,504,060	696,801,202	662,085,360	2,019,390,622

Source: author's calculations (Final Report…2007)

the fact that the funds for the projects were mainly spent on investments in the infrastructure located in voivodeship cities. The number and value of projects executed under the contracts signed by project leaders are presented in Table 2.

None of the projects of such a type was executed under the public and private partnership model that dominates similar investments in regions of the European Union member states.

Under the programme of Restructuring and Modernisation of the Food Sector and Rural Areas Development (SOP Agriculture) projects related to IT development were also carried out, and consisted of the purchasing of computers or training in the use of computer technologies. Such projects were co-financed by the European Agriculture Guidance and Guarantee Fund (EAGGF). In general, there were 195 projects completed for the total amount of PLN 37,892,398, while the contribution from public funds stood at PLN 15,571,109.

Not only has the level of the availability of the telecom and IT hardware and access to the Internet, but also the computer skills of the citizens had an influence on the development of the information society. A detailed review of projects has shown that there were two types of training courses offered:

1. Training in using the computer in farmstead management, including basic computer literacy skills;
2. Training in using the computer skills to manage animal production in farmsteads with a various scale of production.

In the years 2004-2006 there were 17 training projects of each type completed. The largest number of training courses were carried by the Advising Centre Agroexpert (16 projects), followed by voivodeship advising centres and agriculture chambers (10 projects), while the remaining ones were done by universities (5 projects) and also foundations and associations (3 projects). All in all, the value of the training projects stood at PLN 5,951,697.32, of which 80% of the costs were reimbursed by the EAGGF. Figure 1 presents the structure and the amount of the European Union funds utilised for computer skills training offered to farmers by individual groups of project beneficiaries.

Training courses were held across the country. Significant differentiation has been found, while reviewing the projects, in terms of their geographical

Table 2

Projects under Measure 1.5 of Integrated Regional Development Operational Programme executed under contracts signed by project leaders with voivodes

No.	Voivodeship	Volume	Value contracts (in million PLN)	Percentage of undersigned contracts
1.	Dolnośląskie	7	26.68	77.8%
2.	Kujawsko-Pomorskie	6	85.49	100%
3.	Lubelskie	9	10.61	15.8%
4.	Lubuskie	1	0.26	10.0%
5.	Łódzkie	9	42.38	69.2%
6.	Małopolskie	9	45.39	100%
7.	Mazowieckie	0	0	0
8.	Opolskie	1	14.86	100%
9.	Podkarpackie	9	15.98	39.1%
10.	Podlaskie	1	28.73	100%
11.	Pomorskie	16	27.29	97.0%
12.	Śląskie	8	44.27	100%
13.	Świętokrzyskie	3	19.10	100%
14.	Warmińsko-Mazurskie	0	0	0
15.	Wielkopolskie	2	11.77	66.7%
16.	Zachodniopomorskie	16	26.04	100%
	Total voivodeships	**97**	**357.09**	

Source: author's calculations (Głomb K. and others 2006)

The structure of performers of the computers training courses cofinanced by the EAGGF
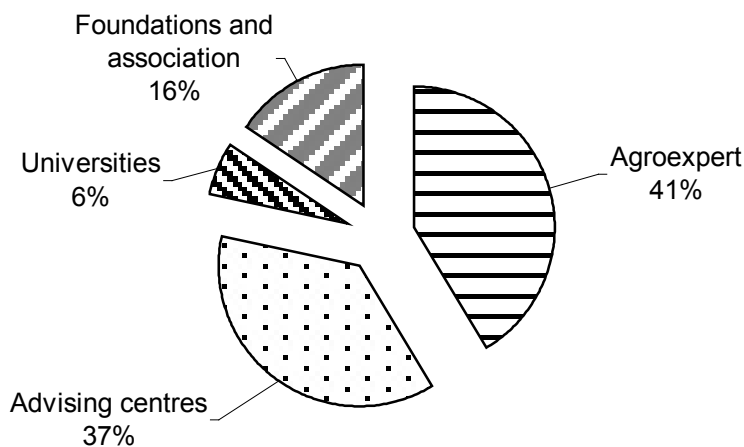
Source: author's calculations (Mapa dotacji …2008)

Figure 1. **The absorption of the EU funds for computer skills training by individual groups of project beneficiaries carried out under the Sectoral Operational Programme Agriculture**

coverage. Mazowieckie, Lubelskie, and Podkarpackie voivodeships were the best, carrying out training projects with subsidies amounting to PLN 1,808,107 - which accounts for 40% of the total subsidy amount from the EAGGF. The worst off were Opolskie (0.7%) and Warmińsko-Mazurskie (0.9%) voivodeships. Table 3 presents a detailed summary on the value of training projects by the type of training and the geographical coverage.

In 48 projects completed under the Sectoral Operational Programme Agriculture the purchase of computer hardware was also included, e.g., the Foundation of Assistance Programmes for Agriculture (FAPA) - 2 projects for PLN 431,362.00 (the EU contributed PLN 323,521.50), the Ministry of Agriculture - 2 projects for PLN 244,644.00 (the EU contributed PLN 183,483.00), marshal's offices (12 projects for PLN 786,854 (the EU contributed PLN 589,390.50). Also the purchase of the computer hardware was included in 30 projects carried out by farmers; however 18 of them were related to agro-tourism business.

The effectiveness of activities in the area of development of the information society is determined by the IT level indicators such as: computer hardware availability, Internet access, IT skills of citizens, access to public services provided electronically, etc. In Poland, according to the data provided by the Main Statistical Office (GUS), 6.8 million households had at least one computer in 2007, i.e. over one million more than a year earlier, and their percentage in the total number of households increased from 45% to 54%. The number of households having Internet access exceeded 5 million (41% of the total number of households), of which 4.8 million households (38% of the total number) actually used the web, while in the remaining ones household members were aware that they could connect with the Internet (mainly via the mobile phone), however, only a few would use such a possibility.

The number of households using the broadband Internet access increased rapidly – in 2007 there were 3.7 million of them (30% of the total number of households). As of 2006 their number has grown by nearly a million (8%) and keeps growing faster than the number of households with Internet access (up by 5%), which means that virtually all new Internet connections are broadband, and this type of access is gradually crowding out the narrowband connections (GUS 2008). To illustrate the IT development in rural areas, Figure 2 shows indicators for rural households in the years 2004-2007.

Commissioned by the Agricultural Market Agency, the Agency for Restructuring and Modernisation of Agriculture, the Agricultural Property Agency, and the Agricultural Social Insurance Fund, the assessment of support instruments for agriculture and rural areas, as carried out by the Research International Pentor, produced results that give a more objective picture on the development of the information society in rural areas.

Table 3

Summary on the value of training projects for farmers on the use of computer skills by the type of training and the geographical coverage (in PLN)

No.	Voivodeship	Type 1 Training – Computer Use in Managing the Farmstead		Type 2 Training – Use of Computer Technology in Animal Production		Total
1.	Dolnośląskie	128,690.00	102,952.00	125,755.15	100,604.12	203,556.12
2.	Kujawsko-Pomorskie	159,770.00	127,816.00	79,968.00	63,974.40	191,790.40
3.	Lubelskie	444,700.00	355,760.00	222,351.00	177,880.80	533,640.80
4.	Lubuskie	61,512.00	49,209.60	31,206.17	24,964.94	74,174.54
5.	Łódzkie	327,100.00	261,680.00	163,838.00	131,070.40	392,750.40
6.	Małopolskie	426,940.00	341,552.00	216,500.00	173,200.00	514,752.00
7.	Mazowieckie	768,044.00	614,435.20	257,189.00	205,751.20	820,186.40
8.	Opolskie	-	-	40,960.00	32,768.00	32,768.00
9.	Podkarpackie	436,900.00	349,520.00	218,450.00	174,760.00	524,280.00
10.	Podlaskie	198,946.00	159,156.80	98,158.88	78,527.10	237,683.90
11.	Pomorskie	109,226.00	87,380.80	54,613.00	43,690.40	131,071.20
12.	Śląskie	196,500.00	157,200.00	111,176.00	88,940.80	246,140.80
13.	Świętokrzyskie	249,658.00	199,726.40	124,829.00	99,863.20	299,589.60
14.	Warmińsko-Mazurskie	-	-	51,168.12	40,934.50	40,934.50
15.	Wielkopolskie	276,964.00	221,571.20	138,482.00	110,785.60	332,356.80
16.	Zachodniopomorskie	81,918.00	65,534.40	40,959.00	32,767.20	98,301.60
	Total Voivodeships	3,866,868.00	3,093,494.40	1,975,603.32	1,580,482.66	4,673,977.06

Source: author's calculations (Mapa dotacji …2008)
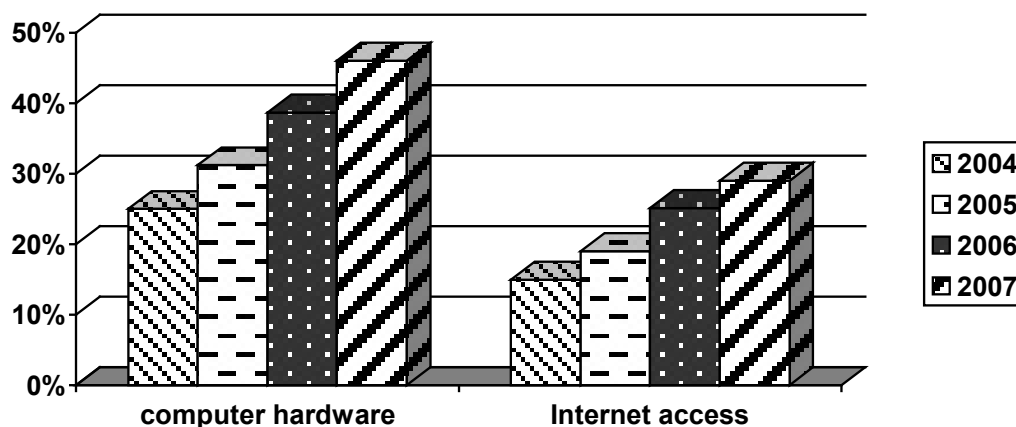
Source: GUS (2006, 2007)

Figure 2. **Percentage of rural households having computer hardware and Internet access (2004-2007)**

In the group of polled farmers (600 persons) as many as 53% said that they did not have a computer. The groups of people having access to the computer was dominated by farmers in medium-sized farms of 3 to 5ha (58%), in the category of farmsteads up to 3ha the number of computer users was smaller by some 15%, while in the largest farmsteads (over 10ha) it was 5% smaller. Young farmers (aged 18 to 40) accounted for 56% of all computer users, while 41% were using the Internet, and electronic mail was used by 28% only. Among the rural area inhabitants (407 persons) there were 46% who had a computer,

but the Internet was used by only 29%, and electronic mail was used by 21%.

Interest in the possibility of submitting requests for direct subsidies via the Internet was indicated by 30% of farmers and as little as 19% of rural area inhabitants. These results clearly show the civilisation backwardness of the rural areas and the necessity of increasing the expenditure for the development of the information society there, mainly in the field of IT education. To the question where information on the European Union assistance should be found, over half of those responding said that in the borough or municipal offices (61% of farmers, and 54% of rural area inhabitants) or provided by the village leader (49% of farmers, and 45% of rural area inhabitants). Only 17% of the farmers and 12% of the rural area inhabitants indicated extension centres (Polska wieś…2008). The trust that the rural inhabitants place in local authorities may be successfully used to promote the idea of the information society, and borough offices providing services electronically may play an important role in the IT education of the society.

Finding knowledge on the Internet about the Common Agricultural Policy and the EU assistance programmes for rural areas was mentioned by a meagre 10% of the respondents. However, nearly 90% of those surveyed expressed their willingness to use the Internet portal for spreading knowledge about rural area development that the Ministry of Agriculture and Rural Development is planning to launch. This clearly marks a positive impulse to intensify efforts in the field of IT development in the rural areas.

Conclusions

Following Poland's accession to the European Union there has already been some progress in the development of the information society which is seen in: the growth in the number of rural households having computer equipment (up by 21%), and the increase (by 14%) in the households with Internet access. Structural funds like the ERDF, the ESF, and the EAGGF have significantly contributed; however, the level of their absorption is unsatisfactory. The majority of projects approved for the years 2004-2007 were low-budget ones, poorly innovative, having a local appeal, the impact of which on the development of regions is imprecisely defined in feasibility studies. Beneficiaries of such projects were focused on satisfying their primary needs relating to the purchase of hardware and software for local administration offices without relating such expenditure to the provision of public services for people electronically. Hence the concern arises that "second stages" in the development of the information society, as they are referred to in the feasibility studies of projects in boroughs and poviats that especially focus on eliminating the 'digital divide' and provision of e-services, will, to a major extent, remain in the field of statements only.

Very often a reluctance to use new information technologies stems from the lack of knowledge and skills. The results of the survey carried by Pentor have confirmed the same. Thus, there is a need to develop a programme of training for rural area inhabitants, with a specific focus on individual farmers. The major purpose of which would be to prepare them to actively use the possibilities that the information society brings about. Development of a complex training system requires the provision of much higher financial expenditure (than until now). To this end, funds from the ERDF that are available under a new programming period (2007-2013) should be used, in which the amount of EUR 1.24 billion has been allocated for development of the information society.

The execution of ePoland programme has shown that an IT development plan for rural areas is needed for the faster development of the information society. This need has been partially addressed in the "Action Plan Relating to the Development of Broadband Access Infrastructure for Information Society Services" developed by the Ministry of Transport in June 2007. It assumes that within three years the number of broadband lines per 100 inhabitants will increase from 6% to 15%, while in the following three years it will reach at least 50%. This should alleviate the differences in web access between rural and urban areas. The situation will also be improved by: dismantling legal barriers making the development of telecom investment projects difficult, state aid in co-financing a modern telecom infrastructure, and the promotion of the latest technical solutions in data transmission.

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Role of Latvia's Agriculture in Foreign Trade

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Abstract

In today's globalisation, the upkeep of foreign equilibrium becomes more and more topical problem. The growth of Latvia's open economy increases also the risk of vulnerability.

Foreign trade balance plays an important role in the analyses of all balances of payments, and in the analyses of any state's economic development. Latvian foreign trade balance from 1995 is negative. The modernisation of industry has to be continued to promote the growth of export in Latvia over the coming years. An important role will be played by the plan of inflation control to minimize Latvia's foreign trade deficit.

Key words: foreign trade, commodity turnover, balance.

Under today's economic globalisation, one of the most important goals to be achieved in the national economy is a positive foreign trade balance. Unfortunately, a great deal of world countries is not able to achieve it, and along with a negative trade balance, the balance of payments gets negative, thus barring an increase in the well-being of residents. Latvia's foreign trade balance has worsened from year to year since 1993. Latvia has to continue actively restructure and modernise its industry and develop agriculture to keep the export growth rates positive or at least at the current level over the next years. A crucial role will be played by the plan for inflation control and budget deficit reduction to reduce the disbalance of Latvian foreign trade.

The aim of the research: to present the state of Latvian foreign trade, including agricultural foreign trade, in the 21st century, and to elaborate recommendations for improving the foreign trade balance.

The research tasks are to:
1) ascertain the evolution of Latvian foreign trade;
2) characterise the assortment of foreign trade goods, and the factors impacting foreign trade;
3) elaborate recommendations for improving Latvia's foreign trade balance on the basis of the analysed data.

The **topic** has become very **urgent** during the recent 10 years due to the worsening of foreign trade balance and problems in the balance of payments.

Research methods used in the paper: synthesis, data comparisons, grouping, and the expert method, and time-array analysis.

The research period: 2000 - 2008.

Introduction

Foreign trade is one of the most important indicators of economic independence and development for any country. The goal of any country is to have competitive foreign trade with a positive balance, which simultaneously promotes a positive foreign exchange balance in the country. Unfortunately, not all countries succeed in achieving it. Many countries have a negative foreign trade balance, especially poor ones. Russia has a positive foreign trade balance owing to its natural resources. Japan, Canada, as well as Norway and Switzerland, the whole European Union, including Ireland, Germany, Austria, and Belgium have positive balances, whereas Turkey and even the USA, and Cyprus, Greece, Bulgaria, Romania, and Latvia in the European Union have negative balances. Latvia's foreign trade balance was positive in 1993, but since 1994 it has become negative and worsens every year. A foreign trade balance includes also foreign services, the balance of which is very positive for Luxembourg, Cyprus, and Estonia. Latvia's balance of services is positive as well. However, the surplus in services is far behind the deficit in goods in Latvia. It is of great importance to identify the causes of Latvia's trade deficit, and to elaborate recommendations for improving its balance of foreign trade (Eurostat).

In 2007 and 2008, Latvia's GDP per capita was among the lowest in the EU, and the trade deficit was very negative.

It is necessary not only to manufacture products, but also to sell them at profitable prices for successful developing of the national economy. Sales functions are performed mostly by both domestic and foreign trade. Foreign trade performs both export and import. Demand for goods depends on the ratio and volumes

of export and import. Latvia's foreign trade balance was continuously worsening during the past 14 years, and imports exceeded exports more and more; as a result, the demand for domestic products decreased and the amount of currency paid to suppliers of foreign goods increased, and at the same time the growth of GDP was slowed down. Radical measures have to be taken to reduce the trade gap in order to foster the growth of Latvia's economy.

Foreign trade is an important factor impacting the gross domestic product and its consumption. Foreign trade is important for any country both for purchasing the lacking goods and for selling excess quantities of goods abroad. All countries develop their foreign trade. But not always these countries succeed in it. And this indicator of bad luck for the country is a negative trade balance, i.e., imports exceed exports. Looking back into history, Latvia had a negative foreign trade balance till 1937 before the government of K.Ulmanis made it positive. Even after 1990, Latvia's foreign trade balance was positive, but unfortunately due to a decrease in output, which took place soon after the country's independence was regained, the exports started declining, whereas the imports kept rising year by year. In 2006 and 2007 (see Table 1) and also in 2008, Latvia's foreign trade balance worsened even more. In 2009, too, Latvia's foreign trade balance will worsen due to the weak Latvian industry. Already in 2005, the imports exceeded the exports by LVL 1978.7 million or LVL 0.9 thousand per capita, accounting for more than 70% of the subsistence level in Latvia. A more catastrophic situation with foreign trade in Latvia, as compared with the previous years, was in 2007 when the exports totalled LVL 4.040 billion, while the imports reached LVL 7.782 billion, i.e., the imports exceeded the exports twice as much – by LVL 3.742 billion or LVL 1.7 thousand per capita (Table 2) (Latvijas statistikas gadagrāmatas 2007 un 2008).

By exporting goods, the newly created value (value added) of goods remains in the country in the form of wages, profits, and taxes. Along with it, the larger proportion (percentage) in an exported good is composed of value added in any form – taxes, wages, or profits, the more profitable is the export of these goods. Theoretically, handiwork products might be the most profitable for export as mostly the whole value of such products is a newly created value, and a small proportion of value is composed of the cost of materials and depreciation of fixed assets. However, a single individual, by knitting, is not able to produce such goods in large quantities, and a value added per employee might not be large, while the proportion of value added relative to materials used in production (yarn, needles, premises, lighting etc.) is large, but its total value is small. Therefore products with a large

value added per employee have to be produced for export. A knitter can do it by using a knitting machine if it is not expensive as compared with an increase in labour productivity. The scientific and technological progress has given many possibilities to raise labour productivity, enabling employees to produce the quantity of goods measured per unit of time, the value added of which is much larger than it was by using a previous technology with handiwork or a more simple technology. More productive machines being able to manufacture goods without direct involvement of people are developed to produce more goods per unit of time. It makes possible to produce more products per employee, generating a larger amount of value added and gaining more income after selling them. However, excessive automation has its limits. The automation process can create a larger amount of value added, but at the same time it consumes a lot of domestic natural resources, i.e., depletes the country's natural resources. Export is rational only if exported goods are not material intensive, especially in terms of consumption of natural resources. For instance, it is still very profitable to export oil – not much work, extraction costs are low, but its value added is quite large. Undoubtedly, since there is no lack of these resources for the near future, it can be done this way. Russia, Iraq, and other countries successfully export oil, but who knows how long. Countries with scarce natural resources have to export products manufactured by productive technologies instead of goods that are natural resources intensive.

Latvia, too, has one economically profitable and renewable natural resource – forests. Around a third of Latvia's export was contributed by forests over the recent years. The export of timber, including furniture, accounted for more than 26% of the total Latvia's export in 2007. A small fraction of exports was contributed by such bounties of nature as fish products, cement and glass products, berries and mushrooms, wild animals and edible snails. Unfortunately, all the natural resources in Latvia can be depleted. If managed efficiently, Latvia's forests could produce 20-50% more timber as compared with the present situation, which can increase the exports produced from renewable resources by less than LVL 1.0 to 1.5 or even 2 billion, while the rest of exports has to be gained from productive human labour (Sproǵis J. Meža …, 173). The river of Daugava has a large potential as a source of energy. It is possible to use wind energy.

Unknown quantities of oil deposits are hidden in the region of Kurzeme, and possibly in other districts of the country. Latvia has also such natural resources as sand, gravel, dolomite, stones, lime, gypsum, and others. Maybe other natural resources, along with amber, will be discovered in Latvia in the future.

Nevertheless, Latvia's resources are not inexhaustible, and more than 60-80% of value added will be gained by means of mental and physical energy of humans in the future – without some special bounties of nature, just using solar energy. Latvia's agriculture has lost its export potential, accounting for a small proportion in the total export.

Results and Discussion

Taking into account the existing natural resources, capital goods, buildings and materials that are produced by humans, and mental and physical capabilities of humans, using technological achievements, Latvia has to develop an export-oriented economy. Exports have to be produced by using high technologies; whereas imports have to comprise natural resources. Since the expansion of agricultural production is limited by the European Union's regulations, in fact, the main development efforts have to be oriented towards manufacturing industries supplying products both for domestic consumption and export. It is possible to develop machine building (not excluding automobile manufacturing interrupted in the past), electronics, chemical, and textile industries, production of equipment and apparatus, and others. Latvia has to develop the furniture industry, and the pulp and paper industry that was interrupted in the past, which uses domestic resources. Restoring the pulp and paper industry in Latvia could increase the output of final goods by LVL 1 billion. There are great opportunities to expand agricultural production and export agricultural goods to Asia, Africa, and Latin America. These markets are not entered and studied by Latvian producers. Many countries in the world lack agricultural goods. Just possibilities for exchange of products have to be used because purchasing power in poor countries is limited.

The total value of exports was LVL 4.040 billion in Latvia in 2007, including food and agricultural goods worth LVL 428.1 million were exported, which is around LVL 0.2 thousand per Latvian resident or more than LVL 0.25 thousand per hectare of agricultural land. Yet the ratio of agricultural exports relative to agricultural imports was 1:1.6 (LVL 428.1 million worth exports and LVL 673.4 million worth imports). The export of food and agricultural goods accounted for more than 10% of the total Latvia's exports in 2007. The largest part of the agricultural exports was the food industry's products (7.8%), livestock products (3.9%), and plant products (2.7%). As to the export of livestock products, the export of milk and cream totalled LVL 52.3 million, butter LVL 6.4 million, and cheese and curd LVL 29.3 million in 2007. Fish products were sold abroad for LVL 26.8 million in 2007. Grains contributed 0.7% or LVL 28.9 million to the exports in 2007. During the

Soviet times, grain was imported from the American continent and the European Union for livestock feed; whereas since 2003 Latvia has become an exporter of grain. In 2005 Latvia exported grain worth LVL 29 million. A large part of the exported grain was rapeseed, a great deal of which used to be delivered abroad for processing. In the recent year, several rapeseed processing enterprises have been established in Latvia, and it is expected that the largest part of rapeseed will be processed in Latvia. Along with the processing of rapeseed, the possibility of using by-products of rapeseed processing for feed will be used. The export of agricultural products was supplemented by forestry, including wild animal products (Table 1).

The largest part of non-agricultural goods exported in 2006 and 2008 was contributed by the manufacturing industry that exported products worth LVL 2.950 billion in 2006. The chemical fibre industry exported goods worth LVL 0.2 billion, but the metal industry's exports amounted to LVL 0.3 billion. As it was mentioned, a large proportion in exports was contributed by timber products – finished or semi-finished goods. Of the total quantity of timber products, round timber worth LVL 85.0 million, sawn timber worth LVL 307.7 million, plywood worth LVL 84.6 million, and wooden products valued at LVL 103.3 million were exported in 2006. Although pulp is not produced in Latvia, paper and cardboard products worth LVL 41.2 million were exported from Latvia. In the same way as other products (except for food exported mostly to the East), the largest part of timber was exported to the European Union, including the Scandinavian countries (Latvijas statistikas gadagrāmata 2007 un 2008).

Although there was a slight growth in agriculture after 2000, the output of food products and beverages decreased due to the impact of crisis in Latvia already in 2008. In November of 2008 as compared with a year ago, the output of food products and beverages decreased by 6.95%, including the output of meat and meat products, food processing and preservation, the output of milk products, and beverages.

A similar decrease was also in industry: the output of metals declined by 30.9% that of equipment, mechanisms, and machines fell by 38.8% etc.

Although the export of Latvian goods increase each year, and even at a faster rate than the import, it lags behind more and more in terms of amount, thus worsening Latvia's balance of payments and causing concerns of the stability of the lat. Without taking radical measures in promoting Latvia's exports, the Latvian balance of payments and the stability of the lat is in danger. Latvia's imports exceed the exports by an amount almost equal to the Latvian government's budget.

Table 1

Exports and imports in Latvia, million LVL

Type of products	2000	2001	2002	2003	2004	2005	2006	2007	% of amount in 2007
Total exports –imports -balance	-802.6	-945.2	-1088.6	-1328.6	-1655.3	-1978.7	-3085.3	-3741.8	-100.0
Exports	1131.3	1256.4	1408.8	1650.6	2150.0	2888.2	3293.2	4040.3	100.0
Imports	1933.9	2201.6	2497.4	2989.2	3805.3	4866.9	6378.5	7782.1	100.0
Live livestock, livestock products - balance	-16.6	-29,6	-41,0	-41.0	-35.9	-41.8	-25.5	-15.7	-0.4
Exports	19.4*	24.3*	23.7*	28.0	46.8	71.0	115.3	149.4	3.7
Imports	36.0	53.9	64.7	69.0	82.7	112.8	140.8	165.1	2.1
incl. - milk and milk products - balance	…	…	…	1.9	11.9	22.2	34.2	47.3	1.3
Exports	11.5	12.7	11.7	15.0	26.8	43.6	68.0	88.0	2.2
Imports	…	…	…	13.1	14.9	21.4	33.8	40.7	0.5
- fish - balance	-4.1	-3.6	-21.1	-1.6	-1.0	-7.2	-6.8	-10.9	-0.3
Exports	5.9	9.5	9.9	10.8	12.2	16.1	21.5	26.8	0.7
Imports	10.0	13.1	31.0	12.4	13.2	23.3	28.3	37.7	0.5
-meat - balance	…	…	…	-0.4	11.7	…	…	...	…
Exports	…	…	…	28.0	46.8	…	…	...	…
Imports	6.4	10.5	13.4	28.4	35.1	47.5	50.1	55.8	0.7
Plant products - balance	-77.1	-73.4	-82.2	-62.2	-78.6	-54.6	-85.8	-86.1	-2.3
Exports	…	…	…	25.3	27.2	76.6	67.6	110.7	2.7
Imports	77.1	73.4	82.2	87.5	105.8	131,2	153,4	196.8	2.5
Food industry's products - balance	-75.1	-63.2	-64.5	-86.6	-96.6	-93.7	-134.0	-161.5	-4.3
Exports	40.1	72.4	100.8	94.1	132.4	200.1	245.2	314.0	7.8
Imports	115.2	135.6	165.3	180.7	229.0	293.8	379.2	475.5	6.1
Food and agricultural goods in total - balance	-168.8	-171.7	-190.9	-212.6	-236,0	-213.8	-271.6	-291.1	-7.8
Exports	59.5	111.0	144.0	148.5	209.3	352.6	435.0	581.2	14.4
Imports	228.3	282.7	334.9	361.1	445.3	566.4	706.6	872.3	11.2

* Table includes only the most specific groups of exports and imports, according to the statistics institutions

Source: 2000 - Latvian Statistical Yearbook 2001, pp. 192 – 204
         2001 and 2002 - Latvian Statistical Yearbook 2003, pp. 194 – 206
         2003 and 2004 – Latvian Statistical Yearbook 2005, pp. 216 – 227
         2005 and 2006 - Latvian Statistical Yearbook 2007, pp. 425. – 438
         2007 – Latvian CSB [Electronic resource] www.csb.gov.lv 4 January 2009

Among agricultural goods, large amounts of meat were imported in 2007, of which beef was worth LVL 3.7 million, pork LVL 30.3 million, and poultry LVL 30.3 million. In total, the value of imported meat reached LVL 55.8 million in 2007, which is about 20 kg of meat per capita or around a third of meat consumption. It is worth mentioning that in the 1980s Latvia produced much more meat – then it was consumed more than now and exported 80 million kg of meat to the East, which was a third of the total output. Along with the export of milk products, Latvia imported milk products worth LVL 40.7 million in 2007. If compared with the value of milk exports, it was LVL 11.6 million less. Along with the export of fish products, Latvia imported fish worth LVL 37.7 million in 2007, which exceeds the exports

Table 2

Role of food consumption in Latvia's foreign trade

Indicators	Unit of measure	2000	2001	2002	2003	2004	2005	2006	2007
Average number of population	million	2.373	2.355	2.338	2.325	2.313	2.300	2.288	2.271
Exports	mln LVL	1131.3	1256.4	1408.8	1650.6	2150.0	2888.2	3293.2	4040.3
Imports	mln LVL	1933.9	2201.6	2497.4	2989.2	3805.3	4866.9	6378.5	7780.2
Export balance	mln LVL	-802.6	-945.2	1088.6	1328.6	1655.3	1978.7	3085.3	3739.9
Exports per capita	LVL	477	534	603	710	930	1256	1439	1779
Imports per capita	LVL	815	935	1068	1286	1645	2116	2788	3426
Food exports in total	mln LVL	59.5	96.7	124.5	147.4	206.4	347.7	428.1	574.2
incl. per capita	LVL	25	41	53	63	89	151	187	253
Food imports in total	mln LVL	228.3	262.9	312.2	337.2	417.5	537.8	673.4	837.4
incl. per capita	LVL	96	112	1335	145	181	234	294	368
Food consumption per capita a month	LVL	27.80	28.16	32.16	32.49	34.90	39.65	43.69	~45
Food imports per capita a month	LVL	8.00	9.33	11.12	12.08	15.08	19.50	24.50	30.73
Food imports relative to food consumed	%	30	33	35	37	43	49	56	68

Source: Food Consumption per Capita in Latvia – Latvian Statistical Yearbook 2007 p. 249;
Latvian Statistical Yearbook 2002   pp. 67-77.
Number of Residents in Latvia – Latvian Statistical Yearbook 2007, p. 117.
2007 – Latvian Statistical Monthly Bulletin 2008/09

by LVL 10.9 million. The import of fish was LVL 17 per capita as compared with more than LVL 17 spent by every Latvian resident on milk imports. The value of vegetable oil imported in Latvia was LVL 17 per capita. In 2007 Latvia imported food industry's products worth LVL 475.5 million or more than LVL 200 per capita. The export of food industry's products is one third less than the import of these products (Table 2) (Latvijas statistikas gadagrāmata 2008).

In total, Latvia imported food and agricultural goods worth LVL 837.4 million, which is LVL 380 per capita or 68% of the food consumed in 2007 (Table 2). This amount is very large, and it negatively impacts Latvia's agriculture. The import of all types of timber products also increased in 2007, amounting to more than LVL 300 million. Of the total amount, a half was timber and its products imported from Belarus and Russia, while less than a half was paper and cardboard imported mostly from the European Union. The import of timber from the East keeps increasing, and it is expected that in the future it will increase as re-export and a part of it will be also processed in Latvia.

It is important to analyse the structure of exports and imports from the point of view of their use –

whether they are capital, intermediate, or consumer goods. In 2007, intermediate goods were mostly imported, while capital goods were least imported. As to the exports, less than 1/10 were capital goods, almost 2/3 were intermediate goods, and 1/3 were consumer goods. Capital goods comprised almost 1/5 of the imports in 2007, a half were intermediate goods, and 1/4 were consumer goods. Among these groups of goods, the largest difference between imports and exports is observed for intermediate goods that are imported more than exported. The difference for consumer goods is smaller.

As to export markets, the largest amount of exports was sold in the European Union. In 2006, goods worth LVL 2.468 billion were exported to the European Union, accounting for 75% of all exports. The value of goods exported to countries of the CIS was LVL 0.461 billion or 14%, while 11% of exports were sold in other countries. In 2006, the largest export partners for Latvia were Lithuania, consuming 14.7% of Latvian exports, Estonia (12.7%), and Germany (10.1%). However, imports worth LVL 4.889 billion or 67% of all imports came from the European Union, LVL 903 million from countries of the CIS (14%), and LVL 586 million or 10% from other countries. In

2006, the largest importers were Germany (15.5%), Lithuania (13%), Russia (7.8%), and Estonia (7.7%) (Latvijas Statistikas gadagrāmata 2007).

If characterising Latvia's foreign trade in general, one can mention that the government has not paid much attention to it; it remained uncontrolled from the point of view of its structure and the ratio of exports and imports. A negative trade balance might make Latvia dependent on other countries, causing threats to the free functioning of the country. Although the negative impact of foreign trade on the country is clearly known, no recommendations or even wishes to reduce or eliminate Latvia's negative trade balance have been received from the European Union. The old European Union countries gain from selling goods to Latvia, disregarding the negative impact of foreign trade on Latvia.

Unfortunately, not only Latvia has a trade gap. The majority of world countries have trade gaps, even the USA. It is characteristic of all the new EU countries that they have trade gaps. It implies that the new EU countries are not able to produce products other countries want to consume. Perhaps, the developed countries are interested in selling their products irrespective of the fact that this trade will impact the economies of the new EU countries. In order to reduce the negative impact of the developed EU countries, the poorer countries are offered more various support funds. Yet their impact on the foreign trade of the new EU countries is not positive, and the trade gaps in the poorer EU countries keep rising. Latvia's trade gap sharply increased after it joined the European Union. Unfortunately, neither Latvian leading institutions nor the leadership of the European Union pay the necessary attention to it. It hinders the development of Latvia's economy, especially agriculture, and at the same time an increase in the well-being of Latvian residents. Such a trade gap might lead to a larger dependence of Latvia on foreign countries and a devaluation of the lat. The trade gap might deepen the crisis of Latvia's economy even more. The time has come for the Latvian government to take radical measures for improving the foreign trade balance. The government has to be involved in production development measures. Latvia is not able to exist with a twice as reduced output as compared with 1990. It is high time to regain independence after it was gained 17 years ago, to develop industries, and to improve the foreign trade balance.

Since the prices of natural gas and electricity supplied by monopolies have unreasonably increased as well as the price of oil products has risen in Latvia during the recent years, the government has to immediately verify whether these price jumps have been justified. As a result of unreasonable price increases, the monopolies make excess profits that are generously donated to various foundations, so that partially the profits are unofficially returned to donators themselves. The government has to consider a possibility to cut taxes on energy, thus reducing prices and inflation. Latvia has to cut the value added tax rate on food as it is in the old European Union countries to reduce the inflation rate and imports. Latvia has to follow an example of Ireland where the tax burden is smaller, exports significantly exceed imports, and the European Union subsidies are used in a more rational way. Finland and Sweden having positive trade balances could be an example for balancing exports and imports.

Conclusions and proposals

1. Such indicators as GDP, balance of payments, and foreign trade balance are significant for characterising the national economy.
2. The largest part of world countries has a negative foreign trade balance. Norway, Canada, Switzerland, Japan, and also Russia have positive trade balances.
3. Since 1993, Latvia's foreign trade balance has worsened every year, and the trade gap reached almost LVL 4 billion in 2007. The trade gap was LVL 1.655 billion in 2004 and LVL 3739.9 million in 2007, including a trade gap for food and agricultural goods of LVL 363.2 million.
4. The total value of exports was LVL 2.150 billion in 2004, but in 2007 it was LVL 4040 million. Timber and its products contributed most to the exports, the value of which was LVL 655 million in 2004 and more than LVL 700 million in 2006. The value of food and agricultural goods exported in 2004 was LVL 206.4 million and LVL 574.2 million in 2007.
5. The total value of imports was LVL 3.805 billion in 2004, including machines, mechanisms, and electrical equipment – LVL 755.7 million and food and agricultural goods – LVL 417.5 million; whereas in 2007 the total value of imports was LVL 7780.2 million, including food and agricultural goods worth LVL 837.4 million.
6. Of the total value of imports in 2004, the largest part was comprised by intermediate goods (LVL 1.4 thousand per capita), followed by consumer goods (LVL 0.7 thousand per capita), and capital goods (LVL 0.5 thousand per capita).
7. In Latvia, the largest part of goods was exported to and imported from the European Union countries. The most important export partners for Latvia in 2007 were Lithuania and Estonia, while Germany and Lithuania were the most important import partners.

8. Latvia had a positive trade balance for timber products and products of stone, gypsum, glass, and ceramics; the opportunity for exporting these products will be available in the future as well. The goal for the government is to promote industrial development by producing more mechanisms, devices, and electrical equipment as well as textile products to expand exports.

9. Latvia has to expand the production of meat products, at least to satisfy the country's domestic consumption to decrease imports. The value added tax rate for food has to be cut to reduce the import of food.

10. Price hikes for energy (electricity, natural gas, and oil products) have to be stopped by administrative measures and tax rates for energy has to be cut to increase the competitiveness of Latvian goods abroad.

11. A crucial role will be played by the measures for inflation reduction to improve the balance of Latvia's foreign trade. These measures, slowing down an increase in domestic consumption and reducing the inflation rate, could hinder an increase in the trade gap. Therefore, a precise and coordinated implementation of the measures is important, demonstrating both an understanding of macroeconomic processes and an ability to control them.

12. It is necessary to support export industries, and to hinder an increase in domestic consumption to balance Latvia's foreign trade. One of the most significant measures for it is a more efficient policy for the real estate market – decreasing a consumption boom, i.e., decreasing an increase in imports, and reducing entrepreneurs' intensions to engage in real estate business because the tax rate is low, thus reorienting them to other industries, especially export industries.

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Evaluation of the Impact of Free Zone Regime on Riga Free Port

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Abstract

The main advantage of free economic zones is the offered tax allowances by means of which the business and attracted investments are being encouraged, thus developing production and increasing the number of jobs.

The article analyses the dynamics of economic indicators of companies, operating within Riga Free Port free zone regime, during the period from 2005 to the 1st half of 2008.

The research results show that some indicators for the companies, operating within the free zone regime are better compared with other companies of the Free Port. The amount of cargos transferred by the companies operating in the free zone regime is larger, and the profitability indicators are higher, which signifies that their activities are more effective.

Key words: Free Port territory, free zone regime, tax allowances, economic indicators of activities.

Introduction

Free economic zones are defined as territorial parts stated by some countries, in which especially favourable conditions are created for domestic and foreign entrepreneurs: customs taxes are cancelled or seriously diminished; there are tax allowances, cheap land lease etc. The purpose of these relieves is to promote capital investments, development of industrial production and commerce (Ābeltiņa, A., 2007).

Formation of such zones in Latvia was started in 1996, and currently there are four free economic zones – Riga and Ventspils Free Ports, Liepāja and Rēzekne special economic zones (SEZ), the main purpose of creation of these was to attract investments, create new work places, and promote development of production and services, thus encouraging economic growth of the region. Initially investment attraction mechanisms were rather efficient, but in 2001 the European Commission adopted a regulation which significantly restricted the main advantages of free economic zones – tax allowances.

Due to the Republic of Latvia joining the European Union, restrictions for application of direct tax allowances in free economic zones were intensified, as according to the norms of the European Union, this is one of the state support forms. The amendments of 2006 to the Latvian law "On Tax Application in Free Ports and Special Economic Zones" contain provisions that the tax allowances may be received depending on the size of the company, which could reach 50-70% of the total accumulated investment amount; the bigger the company, the smaller the allowances. On the one hand it acts like support to small and medium size companies; while on the other hand, it creates less incentive for big companies.

Special economic zones and free ports in Latvia have been formed for the period of 20 years, namely, up to 2017, and the state institutions have not yet evaluated the efficiency of their existence and possibility of further operation after 2017. The author of the research considers that the efficiency of free economic zones should be evaluated on regular basis as well as the positive and negative effect on the specific region, so that within 8 years when these zones expire, an officially responsible decision could be made concerning their further existence.

The research contains analysis of the economic activities of companies operating in Riga Free Port free zone (FZ) regime.

According to Article 1 of the law "On Riga Free Port" adopted on March 28, 2000 by the Parliament, "**free zone regime** means tax allowances and special customs control measure complex, which applies to the companies, the territories of which have acquired the free zone state within Riga free port".

"**Free zone regime** can be applied only to such companies, the territory of which within the Free Port is restricted and provided with respectively established one or several customs points; and guarding, which ensures that movement of persons and goods to and from the licensed company territory would comply with the customs requirements. Each licensed company shall ensure guarding of its territory", (Article 11, law "On Riga Free Port").

Within the context of Article 1 of the law **Licensed company is** explained as a company which has signed a contract with the administration of the Port for entrepreneurship within the free zone regime and has received permit of the administration of the Port for such operation.

The aim of the research is to investigate and evaluate the dynamic of economic indicators of companies, operating within Riga Free Port free zone regime, during the period from 2005 to the 1ˢᵗ half of 2008.

The following tasks have been stated for the fulfilment of this **aim:**
− to characterise tax allowances of Riga Free Port;
− to analyse several most important economic indicators: cargo turnover, investments, wages, indicators of annual report financial analysis, tax payments into the state budget.

Provisions, informative reports of the Ministry of Economics and materials not published by Riga Free Port administration have been used for solving of the research tasks. Direct criteria: turnover, investments, salaries, and tax payments approved within the free economic zone research literature were selected for evaluation of operation of companies working in FZ regime. The author has additionally analysed financial indicators from the annual reports, which is an important condition in order to receive license for operation within the free zone regime. The comparative data analysis, statistical, logical structural and monographic methods were used for the research.

Results

Favourable tax allowance system

The main advantage of free economic zones is the offered tax allowances by means of which the business and attracted investments are being encouraged, thus developing production and increasing the number of jobs. Besides the tax amounts not paid as a result of allowances are being invested in the infrastructure development of the specific zone, and implementation of modern technologies, which create bigger value added of the products.

The law "On Tax Application in Free Ports and Special Economic Zones" (hereinafter - free port and FEZ law) stipulated that free port and FEZ companies are entitled to apply the direct tax allowances, if they have received permit (license) to perform entrepreneurship in free port or the FEZ territory and have made investments in it.

According to the definition given by the law, the investments of free ports and FEZ are the long-term investments made in basic means – buildings, structures, technological equipment and machinery, unfinished construction objects as well as non-material investments. Investments have to be foreseen in the contract signed with the free port or FEZ management, they have to be related to the establishment of a new enterprise, fundamental reformation of the production or production process as well as overtaking of assets of a bankrupt company, the insolvency proceedings of which would be initiated if the assets would not be overtaken. The investments made also have to be used in the operation of the free port or FEZ company within the respective free port or FEZ territory for at least five years since their purchase.

According to the law provisions, the free port or FEZ companies may **apply real estate tax allowance of 80%** from the calculated real estate tax amount, but by the decision of municipality the companies may receive additional allowance of 20% from the calculated real estate tax amount, thus the total allowance could be even 100%.

The law on free port and FEZ states that the free zone and FEZ companies are entitled to apply **80% allowance from the calculated company income tax amount**. While Article 26 of the transitional provisions of the law "On Corporate Income Tax" foresees that for the company, which has applied corporate income tax allowances according to other acts of the Latvian legislation, the company income tax has to be calculated at 25% rate, although since 2004 the corporate income tax rate is 15%. Actually according to the law on free port and FEZ the companies may apply not 80%, but only 66.7% of corporate income tax allowances (Table 1).

Due to the Republic of Latvia joining the European Union, restrictions for application of direct tax allowances in free economic zones were intensified, as according to the norms of the

Table 1

Tax allowances for the companies operating in the FZ regime

Taxes	Tax rate outside the FZ (%)	Allowance rate (%)	Tax rate within the FZ regime (%)
Corporate income tax	15	66.7	5.0
Real estate tax	1.5	80-100	0.3 - 0
Value added tax	18	100	0
Excise tax	LVL X/100 l	100	LVL 0/100 l

Source: made by the author based on the legal enactments of the Republic of Latvia
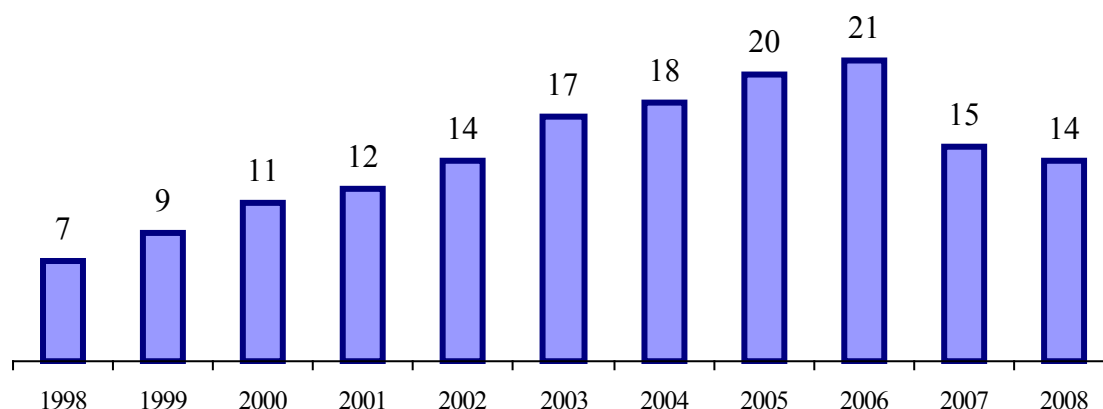
Source: made by the author according to the data from the Ministry of Economics

Figure 1. **Number of companies operating within Riga Free Port from 1998 to 2008**
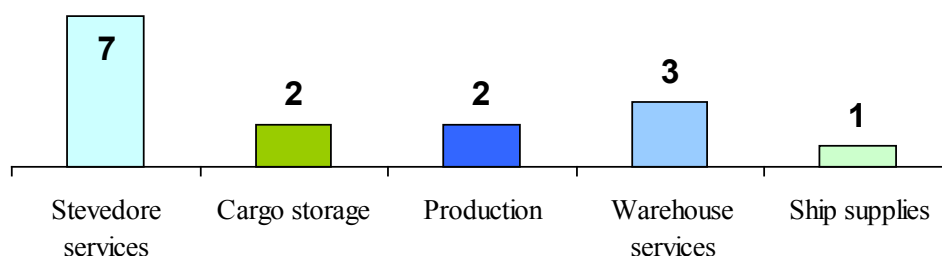
Source: made by the author according to the data from Riga Free port authority

Figure. 2. **Types of activities of companies operating in FZ regime as of the 1ˢᵗ half of 2008**

European Union, tax allowances to certain tax payers is one of the state support forms. Therefore the direct tax allowances in free ports and FEZ are regulated not only by the Free port and FEZ law, but also by the Commercial activity support control law. If previously the direct tax allowances were equal to all companies, then now the allowances depend on the company size. The bigger is the company, the smaller the allowances. On the one hand it acts like support to small and medium size companies; while on the other hand, it creates less incentive for big companies.

According to Article 3 of the Free port and FEZ law, **100% excise tax allowance rate** applies within the free zone territory to oil products that the licensed free port and registered FEZ companies receive for using in technological transport means and stationary equipment, ships and other floating vehicles, which are used in waterway deepening and extending works as well as for the production of heat energy and electric energy.

Indirect tax allowance is also the application of VAT 0% rate. VAT 0% rate application is stipulated both by the law "On Tax Application in Free Ports and Special Economic Zones" and the law "On Value Added Tax".

Analysis of the companies operating within Riga Free Port free zone regime

At the beginning of 2008 there were 14 companies operating in Riga free port free zone regime of the total number of companies registered within Riga free port – 98. During the first half of 2008 Riga Free Port has not issued new licenses for operation in free zone regime; however a license was cancelled for one company due to insolvency.

Analysing the dynamics of the companies operating within free zone regime, one can see that the number of companies steadily grows until 2006 (Figure 1).

Due to the changes of port borders in 2006, from September 1, 2006 free zone licences have been annulled for two biggest stevedore companies of Riga Free Port: limited liability company "Rīgas Centrālais termināls" and limited liability company "STREK" as well as holding companies   "Rīgas 1.saldētava", and "Rīgas ostas elevators", which are located in Andrejsala. Thus the number of companies operating in Riga Free Port free zone regime in 2007 diminished to 15 companies.

As it is seen in Figure 2, almost half of the companies operating in FZ regime – namely 7, render
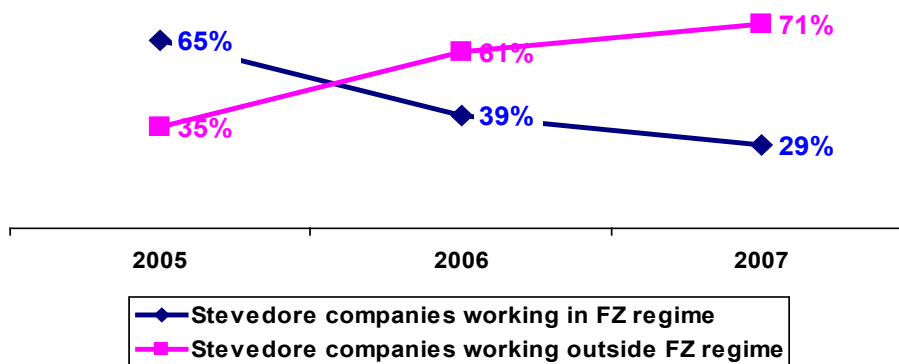
Source: made by the author according to the data from Riga Free port authority

Figure 3**. Total cargo turnover percentage distribution in Riga free port in 2005-2007**

Table 2

Marine cargos transferred by Riga Free Port FZ licensed companies in 2005-2007

Types of companies	2005 (thou. t)	2006 (thou. t)	2007 (thou. t)	Increase %	
				2005/2006	2006/2007
FZ licensed stevedore companies	6420.8	6991.1	7440.2	8.8%	6.4%
Cargos transferred by the rest of Riga Free Port stevedore companies	18008.3	18366.5	18492.6	1.9%	0.7%

Source: made by the author according to the data from Riga Free port authority

stevedore services, and only 2 companies are involved in production.

Transferred marine cargo

In 2007 there were 31 stevedore companies in Riga Free Port dealing with marine cargo transfer (stevedore services), including 7 companies licensed for FZ operation, which transferred 7440 thousand tons of cargo during this time or 29.3% of the total cargo turnover at the port, but in the first half of 2008 the cargo turnover of FZ terminals equalled to 4.22 million or 29.4% of the total cargo turnover.

In 2006 the FZ companies transferred 6 090 thousand of cargo or 39% of the total cargo turnover of the port, whereas 9 companies of the total number of companies licensed for FZ operation within Riga Free Port (18 companies) were dealing with marine cargo transfer, and their total marine cargo turnover in this year reached 15.81 million tons, which was 64.7% of the total cargo turnover of the port (Figure 3).

In 2005 the biggest stevedore companies according to the transferred amount were the following: SIA "Rīgas Centrālais termināls", SIA "STREK", SIA "Lacon", SIA "Baltic Container Terminal", and SIA "Alpha osta". According to Figure 3, the percentage

turnover of the cargo turnover of stevedore companies working in the FZ regime of the total cargo turnover has decreased each year. The most rapid decrease in 2006 is explained by Riga Free Port border changes, as a result of which the stevedore company with the most transferred cargos - SIA "Rīgas Centrālais termināls" lost its FZ license.

Comparing the transferred cargo amount increase an opposite tendency could be established in the same period (Table 2).

The increase of cargos transferred by the Riga Free Port FZ licensed companies during the recent years has been bigger (8.8% and 6.4%) than the rest of the companies operating within Riga Free Port (1.9% and 0.7%), therefore the activities of FZ licensed stevedore companies had been more effective.

Investments

Attraction of investments is an important task of free zone regime. Most of investments during the period from 2005 to 2007 have been made to buildings and structures as well as equipment and machinery. The decrease in the scope of investment in 2007 can be explained by Riga free port border change when the FZ license was annulled for one of the biggest stevedore companies SIA "Strek", investments of

Table 3

Investments by Riga Free Port FZ licensed companies for 2005- 1ˢᵗ half of 2008 (LVL)

Investment object	2005	2006	2007	1ˢᵗ half of 2008
Buildings and other structures	2 756 871	4 563 147	5 600 693	1 768 605
Equipment and machinery	2 203 304	3 403 045	5 774 187	588 450
Other basic means	363 622	210 546	657 498	155 750
Costs of basic mean creation and unfinished construction object costs	84 601	20 322	0	155 000
Total	**5 408 398**	**8 197 060**	**12 032 378**	**2 667 805**
Total amount of all Riga free port companies	27 435 958	33 558 079	104 817 716	no data
FZ regime companies specific weight (%)	**20**	**24**	**12**	**no data**

Source: made by the author according to the data from Riga Free port authority

which in 2006 made up to 19% of the total amount of investments of the FZ companies (Table 3).

Investments made by the companies operating in FZ regime in 2007 made up 12% of the total Riga free port company investments, in 2006 – it was 24%, but in 2005- 20%.

SIA "Bolderāja Ltd" has invested the most in formation of its share capital in 2007; this company is specialised in production of plywood boards and operates outside the free zone regime. During the review period the company had invested LVL 81.5 million in the formation of share capital and construction in progress. Apart from SIA "Bolderāja Ltd", the biggest part of the rest of investments (46%) in 2007 was made by the companies operating within free zone regime. By the scope of investments the next biggest FZ companies were: SIA "Alpha osta" (LVL 2.3 million), SIA "Systems Recycling" (LVL 1.8 million), and SIA "Naftimpeks" (LVL 1.7 million).

Evaluating the operation of Riga Free port FZ regime by the criteria of attracted investments, it may be concluded that the FZ regime has partially justified one of the purposes of its creation – attraction of investments, since their dynamics are fluctuating.

Employment

Significant criteria for evaluation of FZ operational efficiency is employment, since hypothetically FZ companies should create new jobs, thus decreasing unemployment in the specific region.

In 2006 additional 126 units were formed within the free zone companies, but the number of employed persons in the free port FZ regime companies in 2006 was 1061 employees, which is 45.8% less than in 2005, and this could be explained by annulling of FZ licenses to the biggest stevedore companies of

the port - SIA "Rīgas Centrālais termināls" and SIA "STREK" related to the changes of port borders.

Analysing the employment as the indicator for FZ operational efficiency, it has to be concluded that Riga Free Port FZ companies create new jobs each year, although in Riga the unemployment level is not that high compared with other regions.

The average gross monthly salary (LVL 410) in Riga Free Port FZ companies in 2007 was a little lower (LVL 13) than the average gross monthly salary in the country. According to the data of the Central Statistical Bureau of the Republic of Latvia, the average gross monthly salary in 2007 was LVL 397. The data for average salaries in 2005 and 2006 have not been submitted.

Tax payments

Tax allowances are those that form the special status of the free economic zones and attract investors, because it is a significant advantage to the companies operating within FZ regime.

In 2007 Riga free port companies actually paid in taxes LVL 29.4 million. The biggest part of the total actual tax amount paid for the review period consisted of VAT (LVL 8.2 million), corporate income tax (LVL 6.32 million), and personal income tax (LVL 6.26 million).

Table 4 summarises the information on taxes paid by the companies operating within FZ regime in 2005-2007.

Despite the fact that the companies operating in FZ regime have tax allowances, the companies operating in FZ regime had paid LVL 3.4 million in 2007, which constitutes 11.6% of the total amount of taxes paid by Riga port companies – LVL 29.4 million, in 2006 it was 42% of the total amount – LVL 16.9 million, but

Table 4

Taxes paid by companies operating in free economic zone regime in 2005-2007 (LVL)

Type of taxes	2005	2006	2007
Corporate income tax	556 197	1 490 683	878 475
Personal income tax	1 876 150	1 360 950	1 096 935
Soc. insurance compulsory payments	2 359 220	1 338 141	1 012 820
VAT	1 288 835	2 894 408	309 685
Real estate tax	169 419	100 163	97 141
Customs tax	17 113	5 509	1 895
Natural resource tax	4 457	2 598	1 174
Other taxes	1 391	15 952	432
Total	**6 272 782**	**7 208 404**	**3 398 557**

Source: made by the author according to the data from Riga Free port authority

Table 5

Relative average financial indicators of Riga Free Port companies in 2006-2007

Relative financial indicators	Companies outside FZ 2006	FZ companies 2006	Companies outside FZ 2007	FZ companies 2007
Profitability				
Sales profitability (%)	6.4%	**6.0%**	5.9%	**10.5%**
Gross profit profitability (%)	17.5%	**13.7%**	15.4%	**17.4%**
Active profitability (%)	7.9%	**7.2%**	5.5%	**10.8%**
Own capital profitability (%)	21.8%	**17.8%**	16.4%	**25.9%**
Liquidity				
Net liquid assets (LVL)	1 051 382	**2 909 645**	-6 722 980	**-5 860 595**
Liquidity (coeff.)	1.16	**0.79**	0.95	**0.69**
Absolute liquidity (coeff.)	0.19	**0.12**	0.20	**0.06**
Creditworthiness				
Loans / own capitals (coeff).	1.6	**1.5**	2.2	**1.3**
Proportion of obligations in balance (%)	61.8%	**59.1%**	68.9%	**56.1%**
Interest coverage coefficient	10.9	**5.9**	5.1	**9.9**

Source: made by the author according to the data from Riga Free port authority

in 2005 – 8% of the total amount of taxes paid by Riga port – LVL 77.3 million. The low percentage proportion in 2005 can be explained by the tax over-payment in the previous period.

Financial indicator analysis

The company has to be financially stable to receive a license for operation in FZ regime within Riga Free Port. Table 7 summarises the most important financial indicators of the economic activities of Riga Free Port companies, which are calculated from the financial statements: profit or loss account and balance sheet. The annual financial reports submitted to Riga Free Port management for years 2006 and 2007 were used for the analysis of financial indicators.

Total commercial profitability has declined for those Riga Free Port companies that operate outside FZ regime, in turn the total profitability of the FZ

companies has improved. Gross profit and also balance active profitability indicators in the analysed period have also decreased for the companies outside the FZ, but they have increased for the companies within the FZ. It can be concluded that FZ companies have operated more efficiently, possibly their expenses have been optimised, by diminishing extraordinary expenses. The high own capital profitability can also be viewed positively, as it characterises the efficiency of the company's economic activities and optimal use of the capital. In 2007 this indicator for FZ companies increased up to 25.9%.

Total liquidity of Riga Free Port companies can be evaluated as satisfactory only; the balance value of net liquid assets has rapidly decreased in the analysed period. Also the total liquidity coefficient is less than 1, which proves the hypothetical inability to cover short-term loans by assets.

Total proportion of liabilities for companies outside FZ has increased, but, as the coefficient of interest coverage shows, in general the companies have no problems to make regular interest payments for the financial loan resources. For FZ companies this indicator has improved in 2007.

Liquidity and creditworthiness indicators are comparatively similar and do not present the hypothetically stated positive norms, therefore it cannot be said that the solvency and liquidity of the FZ licensed companies is better or worse than for the companies outside FZ regime.

Conclusions

1. The cargo turnover of the stevedore companies operating in FZ regime in percentage of the total cargo turnover has declined every year due to the free port border changes; however the increase of cargo volume transferred by the FZ licensed companies in 2006 and 2007 was bigger than for the rest of the companies operating within Riga Free port territory, which signifies that the activities of the FZ licensed stevedore companies are more effective.
2. Investment dynamics of the FZ regime companies is irregular and one may assume that this criterion is being only partially fulfilled.
3. Each year the FZ regime companies create new jobs and the salary in 2007 is a little higher than the average in the state.
4. Companies operating in FZ regime get tax allowances, though in 2007 the companies had paid LVL 3.4 million, which is 11.6% of the total taxes paid by the companies operating within

Riga Free Port. Tax amount has diminished due to the Riga Free Port border changes in 2006.
5. Comparing the profitability indicators, one may conclude that FZ companies have operated more effectively. The profitability indicators of companies outside FZ regime have worsened. Liquidity and creditworthiness indicators are equal for companies operating both within and outside the FZ regime, and do not reach the hypothetically stated norms.
6. Corrections in the economic indicator dynamics have been made by Riga Free port border changes, due to which the free zone territory has decreased and four biggest companies have lost their FZ license.

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Changes in the Mechanism of Direct Support and Agricultural Markets Stabilisation in the Aspect of the CAP "Health Check" Proposals

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Abstract

The Health Check communication provides a complex series of ideas for further development of the CAP. The Commissioner's proposals try to ask more searching questions about the purpose of the Common Agricultural Policy and the challenges it faces in the decades ahead and thence the directions in which it must evolve. The main aim of this paper is to present the concepts of the changes of the EU agricultural basic support mechanisms directions accepted within "Health Check" review and their evaluation in view of the EU agricultural markets stabilisation. The authors will focus on those aspects of medium-term review which according to them are the most crucial to further EU agricultural development. Analysing final proposals, they conclude that the EU farming on account of its specific character should still be supported and should not fully be subjected to market rules, and simultaneously it must preserve its common character. The support reorientation form market one to the single payments should be assessed positively as a more efficient method in stabilising farming incomes. A step in a good direction is the strengthening the financing of rural areas via the modulation system, since Pillar II plays an important modernisation and pro-development role, and further more it meets the social expectations. In a situation of new challenges it is necessary to implement efficient methods of risk management such as: the new insurance against natural disasters and animals' diseases insurance.
Key words: health check, direct payments, market stabilisation, risk management.

Introduction

In the past years the Common Agricultural Policy in the European Union has undergone significant transformations due to progressing world-wide economic globalisation and liberalisation processes as well as the pressure of European society and international organisations. The incentive to changes was also the fact of growing support costs and too high budget commitments. As a result in the years 2003-2004 a deep reform of the CAP was carried out which changed a lot of intervention mechanisms on the agricultural market and stating the shape of the CAP for the period of 2007-2013. Those targets were especially stressed which aimed at the EU agricultural market competitiveness growth on the world-wide market along with preserving the level of rural inhabitants incomes and natural environment safety. Therefore the agricultural policy was to support not only its productive function but also other non-productive functions creating the background for the multifunctional and sustainable farming, i.e.,

providing the economic, social and environmental criteria[1].

Simultaneously on the basis of the agreement in force drew by the agricultural ministers of the EU-15 in Luxembourg of 26 June 2003, and the arrangements of the EU Board of 22 April 2004 the European Commission was obliged to evaluate the reformed agricultural policy functioning and its simplification[2]. In November 2007 the Commission published the announcement "Preparations to the CAP functioning evaluation", the same beginning the 6-month-period of formal consultations of that document with farming-related representatives of various circles. This review the so-called "Health Check" was to assess the CAP functioning and to make a proper correction of reformed instruments and as a result to pass a package of legislative acts concerning the CAP. It was extremely important time because the accepted solutions will be the issue of the EU budget in the years 2009-2013 and in the next financial perspective of 2014-2020. Political agreement on the CAP Health Check was finally reached on 20 November 2008.

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[1]   Information of the Polish Government opinion on CAP after 2013, Kancelaria Prezesa Rady Ministrów, Warszawa 2006.

[2]   Polska wizja Wspólnej Polityki Rolnej wobec wyzwań oceny funkcjonowania WPR, Ministerstwo Rolnictwa i Rozwoju Wsi, Warszawa 2007, p. 3-4.

Many of negotiations were undertaken in discussion between the Commission, the French Presidency and the individual Member States.

The main aim of this paper is to present the concepts of the changes of the EU agricultural basic support mechanisms directions accepted within "Health Check" review, and their evaluation in view of the EU agricultural markets stabilisation. The authors will focus on those aspects of medium-term review which according to them are the most crucial to further Union agricultural development. They amount to provide the answers to the following questions[3]:

− How to make the Single Payment Scheme simpler and more effective?
− Should some financial means of Pillar I be transferred to support rural areas?
− How to live up to new challenges as climate changes and growing food prices? So how to manage the risk in agricultural production?

The study in a theoretical layer is based on a deductive method, using the available bibliography. The methods of inductive inference were resorted in the analysis of the source data, such as European Commission's documents.

The future of Single Payment Scheme

The direct subsidies are the basic instrument of the EU support and they should be considered in view of the public goods creation linked to the external effects existence. It is connected with the creation of rural areas multifunction and the agriculture itself (Czyżewski A., Kułyk P., 2008). The share of the CAP payments grew in the EU budget in the past years which allowed to compensate partially the reduction of prices, and to separate to some extent the support from the production. In the same time due to the growing world-wide competitiveness and trade liberalisation the demands for the agricultural producers changed, and the payments mechanism followed transforming and started to take into consideration the environmental requirements, the animal welfare and good farming practice. During the debate within the medium-term union budget review the issues of Single Payment Scheme were broadly discussed. The sense of continuing the support as well as its shape was considered. Generally there is an agreement that further support

is needed which can be explained with the following arguments (Czyżewski A., Stępień S., 2008 [2]):

− in the case of Pillar I support abolition it can be expected that many of farms will not be able to function in the free market. Mostly bigger farms with field crops and dairy products will become unable to create incomes in which the payments constitute a major part of the total income;
− the abolition of payments will significantly weaken the EU agricultural competitiveness in the world. It is caused by the fact that the world price competitiveness of agro-food comes first of all from beneficial soil and climate conditions; in view of that the American production will gain the comparative advantages;
− the risk caused by the Single Payment Scheme liquidation is connected with the supply reduction, and the farming products price increase on the internal market which will be disadvantageous for the consumers. Moreover, this phenomenon can be of a progressive tax character because higher costs can be borne by households of the lowest incomes but the highest share of food expenditures;
− moreover direct payments influence the production quality assurance and taking into consideration environmental requirements. Thanks to the payments the EU farmers can produce goods which fulfil the veterinary, sanitary and quality standards, and for which the consumers' demand continually grows. Thus the direct payments are the price which the society pay in exchange for the food safety (in a quantity and quality sense) as well as becoming independent from countries like the USA, Brazil or Argentina.

Negotiations on the direct payments additionally concerned further unification of direct payments system among the EU members. It seems right to unify the system and to move to one system as Commission declared[4] (unified payment per household (SPS) is the prospective system in the EU), all the more that farmers of all union member countries will be obliged to fulfil the same requirements regarding the environment and food safety (the so-called cross-compliance), and the union support will depend on that. It seems the system of the EU means distribution which covers the historical level of production is unfair, especially from the point of view of the new member states including Poland, therefore it is postulated to switch to a regional model of single

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[3] Communication from the Commission to the European Parliament and the Council: Preparing for the "Health Check" of the CAP reform, Commission of the European Communities, Brussels 2007, p. 3.
[4] Rezultaty przeglądu Wspólnej Polityki Rolnej, Ministerstwo Rolnictwa i Rozwoju Wsi, Departament Programowania i Analiz, Warszawa 2008.

Table 1

**Redistribution to equalise payments per hectare and per recipient for the selected countries in the EU –
estimation for 2012**

Country	Redistribution to equalise payments per hectare for 2012 (in million EUR per country)	Per cent change 2012 in relation to 2007	Country	Redistribution to equalise payments per recipient for 2012 (in million EUR per country)	Per cent change 2012 in relation to 2007
Romania	+ 2 737	+ 618%	Poland	+ 5 143	+ 188%
Bulgaria	+ 1 019	+ 618%	Italy	+ 4 032	+ 100%
Poland	+ 883	+ 32%	Greece	+ 2 425	+ 104%
Spain	+ 655	+ 13%	Lithuania	+ 1 017	+ 301%
United Kingdom	+ 453	+ 14%	Portugal	+ 708	+ 114%
Italy	- 1 113	- 28%	Czech Republic	- 665	- 86%
France	- 1 219	- 16%	United Kingdom	- 2 412	- 72%
Germany	- 1 394	- 27%	Germany	- 3 294	- 64%
Greece	- 1 447	- 62%	France	-5 323	- 68%
EU-27	Total redistribution – 6.6 million EUR	16%	EU-27	Total redistribution – 5.7 million EUR	35%

Source: Analysis of the Health Check Proposals… [2008]

payments[5]. In a further perspective it can contribute to equal the competitiveness between the EU-15 countries and the new members, and as well it will cause the simplification of procedures and it will be more farmer-friendly.

However it must be noticed that the decision of a single payments scheme change in the direction of the unified payment will cause a significant move of the EU budget redistribution (it is estimated that it will reach approx. EUR 6-7 billion)[6]. The beneficiaries will be mostly new member states like: Romania, Bulgaria and Poland as well as poorer countries of the "old" Union, i.e., Greece,

Portugal, Spain. On the contrary hand the losses will be borne by those countries until now to a big extent used the European farming support like France and Germany. An objection can be expected from those countries while further negotiating the shape of a future Single Payment Scheme. To convince them it must be indicated that the proposed changes are complementary with the CAP aims, and it is a difficult task. Nowadays it is clearly visible that one of the main targets of the Union policy which s the support of countries of the lowest development level in view of the available data is not fulfilled. Such situation requires the renewal of a detailed debate

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[5]   In a historical model for each farm a single payment was calculated (separate for a fallow lands and for other fields entitled for the payment) which is dependent on the production size in reference period (i.e. in 2000-2002). Hence, payments calculated per hectare were different for each farm. A regional model of single payments differs from historical model this way that the regional financial envelop is shared among all farmers in the region also those who did not receive the payments in the reference period. Regions are defined by the states members on the objective criteria (e.g., Poland is one region and Great Britain has four regions: England, Wales, Scotland and the Northern Ireland) and for all farmers from the particular region a regional payment per hectare applies, uniform for all grounds or distinguished green lands and other entitled grounds. The payment amount received by the farmers is calculated on the basis on the quotient of global payment amount received by all the farmers in particular region or country in reference period and the number of hectares entitled for the payment. This way a single payment in region is stated. This amount is multiplied by the right number of freehold entitled to get the support which refers to the number of general freehold. It shows the magnitude of the single payment received by the agricultural producer.

[6]   *Analysis of the Health Check* **Proposals: the reform of the mechanisms for direct support**, European Parliament, Directorate General Internal Policies of the Union, Brussels 2008, p. 3.

on the CAP aims and stating the instruments of the implementation.

The support of rural areas development via the modulation mechanism

The EU policy concerning rural areas evolved along with the CAP development. Initially it was focused on the structural problems in the agri-food production sector to become the policy concerning a different farming significance in the society regarding the implemented CAP reforms, especially the challenges which should be undertaken in a wider – social, economic and environmental context of rural areas. Already in 1999 during the agreements of Agenda 2000 it was pointed out that the significance of agricultural sector decreases and its non-productive significance increase: providing traditional cultural values, landscape and specific eco-systems preservation as well as co-creation of the rural areas character. During the meeting in Luxembourg in June 2003 ministers for agriculture agreed that the EU faring policy should head to strengthen Pillar II of the CAP, and that its superior aim is to create conditions in which farming will become multifunctional, market balanced and it will be able to sustain rural areas, i.e., to protect the environment and contribute significantly in the rural life vitality (Czyżewski A., Stępień S., 2008 [1]). One of the mechanisms which was implemented then was the obligatory modulation which was to assure bigger financial means for the rural areas development. According to this instrument, from January 2005 single payments granted for the EU farmers become gradually reduced[7]. Initially this system covers only countries of the EU-15 and it will come into force in the new member states when they reach the level of payments in the "old" countries.

In the beginning the modulation system was to counteract the excessive privileges of the largest farms which get non-proportionally big support[8]. Such share of financial means can be regarded as less effective because in large farms further opportunities of productivity growth are heavily limited and additionally by taking into consideration the historical scheme, we see the situation when the income is sustained without the incentive to improve the managing efficiency. The possibilities to improve

it via structural transformation often are over due to a limited number of entities and poor labour sources which could be transferred to other use. It leads to adaptive actions which depend on the improvement of the EU means absorption instead of efficiency improvement (Czyżewski A., Kułyk P., 2008). In this context the modulation must be treated as a tool which transfers some means from bigger to smaller rural households and contributes to the development of the latter so this system should be continued. It is also important that the money achieved in this way was allocated to less developed regions to decrease the differences in rural areas among the member states. In a present shape the modulation does not lead to disproportion levelling because most of the means stay in a particular country. Unfortunately, the new deal also states that all funds raised through the modulation will be available for the use within the rural development programme of the Member State in which they are generated[9].

The European Commission proposed to extend the modulation (2% per year in the period of 2009-2012) and to transfer more money to support rural areas from Pillar II. Finally, the agreement resulted in much lower rates of both the basic modulation rate and the "progressive" element. It allows for an additional increase in modulation rates, over and above the existing rate, for the EU-15, of only 5% by 2012 for all farms receiving more than EUR 5000 in direct payments. In addition, farms receiving over EUR 300 thousand will be subject to an additional 4% modulation, whereas the original proposals had recommended further reductions for farms receiving over EUR 100 thousand[10]. Although the progressive element will only affect a tiny proportion of farms across the EU, such attitude is especially important for the EU-15 where further production support is inefficient because the efficiency growth abilities are limited, and the progressing costs increase creates no additional value; whereas in the case of new member states there are areas where the added value growth is possible by the development of purely agricultural functions. Therefore the modulation process should start later (according to the final report, modulation in the new Member States will be applied from 2012 and the rate of reduction will account for 3%).

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[7]   In 2005 the reduction was 3%, in 2006 – 4%, and from 2007 it has been 5% of received by the farm single payments, but there are those farmers excluded who annually receive less than EUR 5 000 of direct support. See: Modulacja w Polsce – wyliczenia szacunkowe, Fundacja Programów Pomocy dla Rolnictwa, Sekcja Analiz Ekonomicznych Polityki Rolnej, Warszawa 2007, p. 2.

[8]   For example, the farms which receive more than EUR 20 000 annually in 2005 in EU-25 absorbed as much as 56.56% if total financial means and constituted only 5.55% of general number of farms. See: EU Strategy for Biofuels. Impast Assessment, European Commission, Brussels 2006, p. 7.

[9]   IEEP CAP Health Check Review: Overwiew of Key Outcomes, Institute for European Environmental Policy, London 2008.

[10]   Ibidem.

Table 2

Mechanism of progressive modulation
(European Commission proposals versus final settlements of "Health Check")

Modulation according to the Commission proposals					
Threshold of direct payment (EUR)	EU-15				Poland in 2012
	2009	2010	2011	2012	
1- 5 000	0%	0%	0%	0%	0%
5 000 – 99 999	5+2%	5+4%	5+6%	5+8%	3%
100 000-199 999	5+5%	5+7%	5+9%	5+11%	6%
200 000-299 999	5+8%	5+10%	5+12%	5+14%	9%
Above 300 000	5+11%	5+13%	5+15%	5+17%	12%
Final settlements of "Health Check"					
Threshold of direct payment (EUR)	EU-15				Poland in 2012
1-5 000	0%	0%	0%	0%	0%
5 000 – 299 999	5%+2%	5%+3%	5%+4%	5%+5%	3%
Above 300 000	5%+6%	5%+7%	5%+8%	5%+9%	7%

Source: D. Krzyżanowska [2008]; IEEP CAP Health Check Review: Overwiew of Key Outcomes [2008].

Otherwise the system would sustain the disproportion of farming support amongst the EU-15 countries and the new members because it will be possible to move the elements of historical payments. It would be against the basic aim of the common policy which is the levelling of differences between the EU regions. Therefore for countries such as Poland possible growth of the modulation coefficient is allowed on the condition that the financial means redistribution scale between member states increases on the basis of objective criteria. Simultaneously the modulation in the new member states should be implemented gradually, similarly as in the EU-15. Otherwise the income and competitive disequilibrium of national households can appear because by 2012 they would not reach the support level of the EU-15.

No matter the interests of particular member states it should be stated that a further expansion of modulation range and transfer of some financial means to support rural areas is a step in a good direction, and the more it is accepted by the tax-payers who finance the CAP and who nowadays criticise its shape. They feel that farming should serve the function of a public good which guarantees landscape and cultural values as well as biological diversity. To get those "services" the farmers should be paid for. Otherwise they will quit such an activity and they will get involved in the production of agricultural sources which profitability grows along with the food demand and food prices grow on the world market

(Czyżewski A., Stępień S., 2008 [2]). Also the fact that the non-agricultural activity significance in rural households income creation is getting bigger and their functioning is dependent not on the production scale but on economic, social and environmental conditions in favour of transferring some financial means from Pillar I to Pillar II. Numerous examples prove that thanks to the support directing it is possible to secure or create new employment in rural areas along with the balanced rural development rules. Thus the environment, landscape and cultural values of rural areas, and the development of non-agricultural functions of rural areas are the values which should particularly be taken into consideration when creating the support structures within Pillar II of the CAP (Matuszczak A., 2007).

There is another premise which argue for the transfer of financial means from Pillar I to Pillar II within the modulation mechanism and which was considered when evaluating the CAP functioning. The point is that Pillar II of the CAP allows implementing mechanisms which have or can have a positive influence on climate change limitation. There are numerous actions which include in that trend. Those are, inter alia, the actions that consider water management (retention increase, actions against floods), erosion protection, forestation (in the context of retention increase, erosion protection as well as green-effect gases absorption), renewable energy, transport solutions, energy-saving modernisation,

and biological diversity protection. Properly created rural areas development policy is able to face those challenges. So it is important that the CAP includes also problems of the climate change results.

Presented arguments justify modulation mechanisms subsistence, moreover its range expansion, however the change of the CAP targets is not possible without the transformation within the financial means redistribution among the member states. It causes problem because the redistribution means "winners" and "losers". Therefore an open discussion should be held on the CAP functioning changes which started with "Health Check" and which have not been closed yet. The changes in modulation mechanism accepted during Health Check set a useful precedent for future negotiations regarding the levels of modulation in the run up to 2013.

A new approach to risk management

A substantial issue discussed within "Health Check" was the concept of risk management in the EU farming. The issue is important because on the climate change conditions, trade liberalisation, animals' and plants' diseases increase etc., this risk continuously grows and the EU policy heads in the direction of market stabilising instruments abolition of the farming incomes. Also the limits and restrains in using herbicides and pesticides which directly influence the risk growth of agricultural production (vulnerability to diseases, pests, etc.) are significant and they are easily transferable to the price risk. So far the EU farming has used such tools of income stabilisation as animals' registration systems, vaccinations, the control of brought agricultural products, extraordinary support means which took place in case of, e.g., a threat of a avian flu epidemic[11]. However, it seems that in the perspective of coming years those instruments will have to be supplemented with new methods of risk management which should concentrate mostly on taking actions to limit the risk and to prevent the crisis situation appearance. In this context it seems right to create an insurance system which would sooth not only negative farming income consequences in a new situation but also the effect of natural disasters like droughts, floods etc. which in case of climate changes will become more and more common. Then, a new CAP "safety net" should not only be more market orientated but also protect the producers against losses, i.e., to include risk management mechanisms which would efficiently

stabilise the agricultural incomes (Czyżewski A., 2008).

The final solutions presented during the medium-term review head in the direction of a creation of common reassurance system to solve the problems which occur as a result of natural disasters or climate changes. The insurance is to be limited to crops insurance in case of natural disasters and a mutual insurance against animals' diseases. The money will come, inter alia, from the modulation (up to 10% of single payments value, member states will be able to transfer to support the agricultural insurance system) and spent within the rural areas development on the condition that they fulfil the criteria of a "green box". However, it should be considered if such an offer does not violate the competitiveness among the member states. Disproportions can conclude from the fact that the maximum amount of the financial means which the member states can allocate in financing the agricultural insurance system is stated as 10% of a national ceiling of payments granted for particular country. So those countries which historically had a higher limit will be able to spend more on the support and simultaneously they will get a higher refund from the common budget (Stępień S., 2008). Because of that it would be advisable in the future to create appropriate financial mechanisms of a structural character, referring to the economically weakest and the most affected regions. So far, additional funding will be allocated to the EU-12 (EUR 90 million for Poland) to make it easier to accommodate to new challenges and new aims[12].

When creating such a system of an agricultural insurance we should remember to fulfil the condition of the insurance commonness which would guarantee a low insurance premium. In case of it being voluntary there is always risk that too few farmers would decide to participate in the system, and the means allowed for this purpose will not be fully used. Simultaneously a part of the premium would have to be covered from the public means. The European Commission proposes that the farmer's share in the premium would be of 60% and 40% would be covered form the public means. For Poland and other member states with a fragmented farming 60% of self-contribution seems seriously too much − it should not exceed 50%. Secondly, it should be differed taking into consideration the difference in the financial support per capita, moreover taking into consideration the production volume and assets value.

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[11]   To some extent also the decoupling mechanism itself limits the price risk because it lets the farmer to change the production structure into the direction of the market which gives a higher value added. However, the change in market support instruments and transition to a single payment scheme requires new forms of income stabilisation.

[12]   CAP Health Check will help farmers meet new challenges (reference: IP/08/1749), European Commission, Brussels 2008.

In countries where the farmers thanks to historical rules get higher support, the self-contribution should also be higher and in new member states lower. After some time (when the payments equal) those shares should also be balanced (Czyżewski A., 2008). Moreover, the level of co-financing should differ for the field crops and animal breeding. In the first case it will be easier to separate the influence of weather factors from the subjective than in case of animal breeding. This subjective factor would be, e.g., skills and diligence of the producer the so-called management factor. In other words, the results of animal breeding are more vulnerable to management which is the factor dependent on the farmer than in the field crop in which the results are of a random character (Rembisz W., 2008). Hence, the insurance companies find the field crops more attractive and apply lower premiums. Therefore in case of field production the share in a premium can be higher than in case of animal breeding.

In turn the issue of involving public means in supporting agricultural incomes stays open. Despite violent food price fluctuations in the past years, within "Health Check" there were no specific reform directions presented. Using the experience of other countries some incentives and stimuli could be created which would prompt the farmers to take care of the income risk insurance on their own (however that insurance should stay voluntary). Those could be for example tax exemptions from insurance payoffs so the "subsidy" would take place after the damage. It could also be the insurance premium inclusion into the income costs for commercial agricultural producers. Simultaneously the capital market development, especially of the securitisation or re-insurance instruments can limit the amount of public means involved in this range in the near future. When creating the insurance rules against prices fluctuation

the experience of other countries like the USA, Canada and Australia[13] which created appropriate instruments should be used. Particularly interesting can be: the income risk insurance on the basis of prices fixed on the stock exchange quotations[14], the indexed insurance with regard to the crops' level, the insurance on the basis of the amounts deposited in advance on a special bank account[15] etc. Those proposals can be applied in the EU by:

— directing public means financing the compensation disbursement for the farmers who insured a particular income level but they did not reach it due to the independent reason also because of market fluctuations,
— the budgetary means support only for those farmers and only when their incomes fall by a stated percent or magnitude with regard to an insured level,
— securitisation of insurance reassurance and participation in irregular compensations which change the insurance costs for the farmer.

The insurance would be of a commercial voluntary character which would implement the co-participation rule of agricultural producers in insuring their incomes with certain subsidies of the state. An efficient functioning of commodity stock is necessary as well as logistic and financial involvement of insurance and financial sector to make the above system work properly.

Conclusions

Globalisation and integration of the world economy as well as new challenges referring to climate changes, rising food prices and trade liberalisation indicate the necessity of many present CAP directions revision. In this context the medium-term review „Health Check" of the EU budget took place. The agreement

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[13] Introduction to Risk Management, Risk Management Agency, USDA, Washington 1997.

[14] Such a system is present in the USA with reference to wheat, maize and soya. A farmer who sells grain makes a forward or future transaction. Forward transactions are usually made between the farmer and elevator who is obliged to buy the grain in few weeks on the fixed price accepted on the day of the agreement. Future transactions on the commodity exchange also concern grain deliveries in a stated time but in contrast to forward transaction are rarely put into practise. So future transactions are speculative transactions and their role is to level the price risk See: K. Rojewski: Zarządzanie ryzykiem w produkcji roślinnej poprzez ubezpieczenia i transakcje terminowe na przykładzie USA, [w:] Kierunki zmian ubezpieczeń produkcji rolnej w Polsce (red. J. Handschke, K. Łyskawa), Centrum Edukacji Ubezpieczeniowej, Warszawa 2008, p. 82-83

[15] That type of insurance is e.g. in Canada. This is a programme for farms in which a farmer deposits particular amounts on a special bank account and the government pays the same amount. The money is to be withdrawn in special situations of natural disasters which cause the income drop below a stated level of stabilisation coefficient. Whereas Australian Programme of Farms' Deposit Management enables the farmer in times of good prosperity to deposit a part of income on a programme account. It exempts the agricultural producer from a part of a tax and transfers the rest of it to a lower tax limit. This programme introduces a tax privilege when withdrawing from the fund which in fact substitutes the withdrawals which would take place in case of natural disasters if the fund did not exist. The deposit fund withdrawals which take place in times of an income drop below a stated indexes' levels are in this programme tax exempted.

introduced a number of evaluations and postulates concerning the CAP functioning. Main areas of the discussion focused on four issues: the future of a Single Payment Scheme, rural areas development, market intervention and risk management. Analysing final proposals regarding the future CAP shape the following conclusions can be presented:

− to implement the new priorities of the CAP, the EU agriculture should still be supported and should not fully be subjected to market rules and simultaneously it must preserve its common character, i.e., common functioning and financing (from the EU budget) rules; any forms of that policy re-nationalisation, especially within the ways of its financing, would create a threat for the competitiveness conditions in the EU;

− the support reorientation from market one should be assessed positively as a more efficient method in stabilising farming incomes; single payments to a much smaller extent should be linked with the production size and structure, and the best destination system would be SPS as it provides unified competitiveness conditions and simplification of payment management, and the farmer itself would be able to foresee the level of support in a long-term because it will independent from the structure and size of production which can fluctuate;

− a step in a good direction is the strengthening the financing of rural areas via the modulation system; Pillar II plays an important modernisation and pro-development role and further more it meets the social expectations which are shown in agricultural policy requirements, harmonically linked with the policy of rural areas and taking into consideration the issues of food quality and health as well as bio-diversity of natural landscape;

− the deregulation of some agricultural markets seems right which is about limiting or abolishing intervention by the market instruments; this postulate also includes the European consumers' expectations as well as external conditions inter alia existing within the WTO; however some range of price intervention should stay and constitute a kind of a "safety net" in case of agricultural economy deterioration; a complete abolition of support mechanisms would be irreversible and would expose the producers to an income drop;

− in a situation of new challenges it is necessary to implement efficient methods of risk management which should also sooth the negative effects of abandoning present support mechanisms; of such a character the new insurance against natural disasters and animals' diseases proposed by the

European Commission should be; implementation of those instruments is fully justified but on the condition of the insurance being obligatory and its co-financing from the public funds; simultaneously for the agricultural incomes stabilisation new insurance systems against economy fluctuations should be developed using the experience of such countries like the USA, Canada or Australia.

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European Union Structural Funds –
Part of Investment in Latvia's Development

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Abstract

Since Latvia is a European Union (EU) member state, it has reached European dimension. This fact has opened many opportunities to develop the country by innovative approach. A lot of technologies are archaic from the Soviet times; thus they should be removed and replaced. The implementation of new technologies is a question of financial and human sources available in the country.

There is a possibility to raise funds, as the amount of foreign investment in Latvia is increasing year by year and its growth is highest in the EU countries for the past few years.

Latvia has high qualified and educated specialists which are not yet recognised fully. They are able to participate in activities related to the implementation and utilisation of innovations.

The productivity in Latvia is one of the lowest among the EU countries, and it is an important issue to be improved for Latvia.

The EU Structural funds are a part of investment meant to facilitate productivity growth by introducing innovative technologies and involving local labour force in production.

Key words: Structural Funds, productivity, investment.

Introduction

Being an EU member state – is a great opportunity for Latvia to attract investment from other EU countries. Investment is a matter of development of any country, and it has a long term impact on the welfare of population.

The pre-accession funds from 2000 – 2004, like SAPARD, ISPA and PHARE were first available finances followed by the EU Structural Funds for the period of 2004 – 2006. Since middle of the previous century the aim of the European Community was to reduce the regional differences in the European Union. Financial tool in order to reach the goal is Structural Funds, which serve to strengthen economic and social alignment in the EU member states.

There have been a lot of discussions in respect of what Latvia as a state has gained and what it has lost during that period. There are many researches done by different scientists. For example, Gunita Mazūre (2007) has analysed up taking SAPARD and European Agricultural Guidance and Guarantee Fund in Latvia compared with the situation in Lithuania and Estonia. She concludes: "Several factors, like state macroeconomic stability, level of produces assets, load of the present capacities and compliance with modern technologies and other factors, explain the recently increasing amount of financial resources and consequently investments into agricultural and rural sectors." (9) It has to be understood that financial investment always will bring new opportunities and

development. Wiliam H.Meyers and others (2006) say that "SAPARD and Structural Funds primarily assist larger farms and businesses. Being heavily linked to agriculture, rural development measures, (…), do not contribute to reduction of regional disparities." (10) Irina Pilvere (2007) is sure that "availability of Structural Funds financing in Latvia after accession to the EU is a significant opportunity to develop economy and to solve social problems". (11) Elita Jermolajeva (2007) concludes: "The appropriate and effective usage of the EU co-funding, regular analysis and adjustments of the plans according to the situation should become one of the public administration priorities in order to accomplish the main task to uptake the funds – to ensure balanced and sustainable development of all the regions." (7) Funds do increase development, but they are not evenly spread out in a country due to administrative disagreements. Wawrzyniec Czubak (2008) has noted that "mainly bigger and economically more efficient situated holdings have been beneficiaries of the Structural funds for improvement and maintenance (…)." (4) This is a situation in Latvia as well – bigger and more developed enterprises obtain funds and get higher return on investment than less developed ones.

The results of this research should approve or reject the **hypothesis** - it is possible to increase productivity by investing the Structural Funds.

The **aim** of this research is to analyse influence of the Structural Funds, as a financial source, allocation to increase productivity in Latvia. It is necessary to complete the following tasks to reach the aim:
1) to analyse the annual growth of Gross Domestic Product (GDP) and growth of investment;
2) to evaluate amount of the Structural Funds available for allocation in Latvia, and their relation/influence on the growth of productivity.

The main **methods** used in the article are as follows: logical comparative analysis of the scientific literature, the methods of generalisation, analyses of statistical data in dynamics, and logical interpretation.

Results and Discussions

1. Relation between GDP and investment

Latvia's economy is developing rapidly after the EU accession. GDP and investment in the national economy are the main indicators showing this development.

As it can be seen in Figure 1, GDP and gross investment has tendency to grow year by year. Theoretically GDP consists of consumption, government spending, gross investment and net export. On average investment comprises 35% of GDP for the time period of four years. It is a significant part of GDP.

The average annual growth of investment is the highest among the EU states. The average annual growth rates of investments exceeded the average indicator in the EU states almost four times. Considering the investment amount per one employee, Latvia substantially lags behind the EU average. The profit of investment in Latvian companies has the highest rate in short term among the EU countries.

The basis for rapid dynamics of investments was the availability of cheap financial resources, which was determined by both, the intensified inflow of foreign capital since Latvia's accession to the EU, and improvement of financial position of enterprises due to the relatively low tax burden and high domestic demand. (12)

The Structural Funds are a part of investment that is invested to develop enterprises. Gross investment as such is a part of gross domestic product (GDP).

For the past eight years GDP in Latvia is persistently increasing. Especially, the speed of growth started from 2004, as Latvia became an EU member state. The investment growth compared with GDP growth is shown in the next figure.

The growth of investment has increased twice for the past four years, for the period when Latvia is an EU member state. As well the growth of investment exceeds the growth of GDP by 15% in 2007. Latvia is very attractive for foreign investors to invest their spare money, and to develop their business.

2. The EU Structural Funds in Latvia

Four EU Structural Funds (SF) were available to allocate as investment in Latvia's economy from 2004 to 2006. For Latvia this period has been shorter than for the "old" member states.
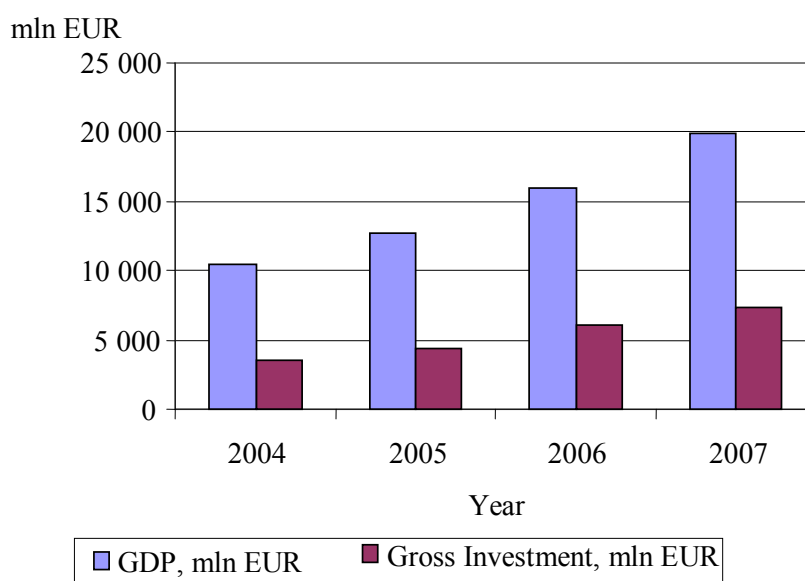
Source: made by the author according to the data from www.csb.gov.lv

Figure 1. **The amount of GDP and gross investment in Latvia for the period of 2004 – 2007, mln EUR**
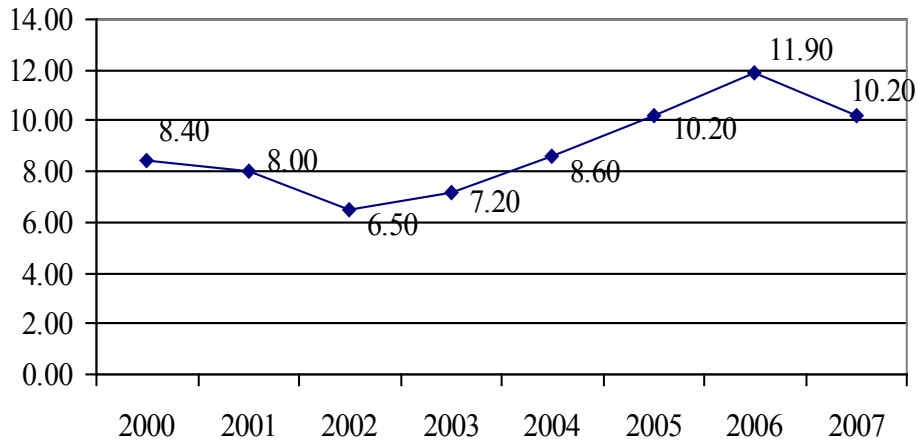
Source: made by the author according to the data from www.csb.lv

Figure 2. **Growth rate (based on the previous year) of GDP from 2000 to 2007, %**
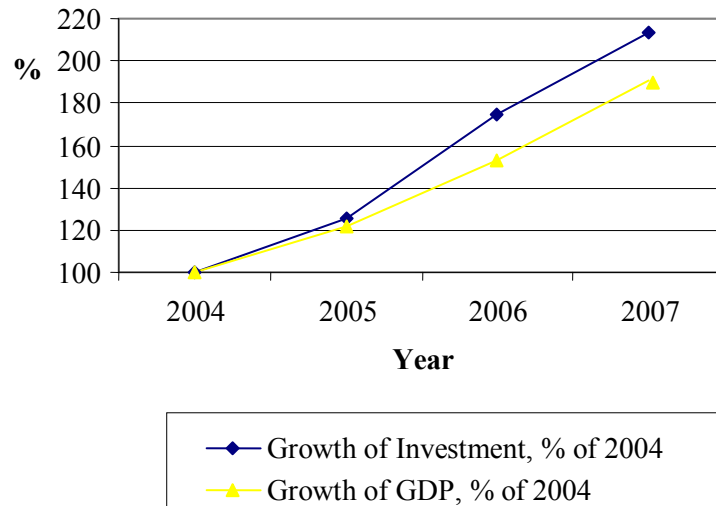
Source: made by the author according to the data from www.csb.lv

Figure 3. **Comparison of GDP and gross investment growth from 2004 to 2007, %**

There is a big difference between rural and urban areas in Latvia. A big amount of SF was allocated to reach territorial cohesion to be competitive within the EU market.

There is a need to develop new companies and implement innovative thinking, to create new working places, and to provide new opportunities for labour force. One of the options was to obtain the EU SF to develop infrastructure, to support enterprises, to provide studies for unemployed persons etc.

The total amount of Structural Funds for the period of 2004 - 2006 was EUR 856 069 495 decomposed in four funds according to the priorities of Latvia's Single Programming document.

The biggest share of financing came from the ERAF- 57 %, followed by the ESF- 21%, EAGGF, and FIFG. 73% of total SF amount are investment

from the EU, the other 27% are the state co-financed. The data show that 1 EUR on average enchains 3 EUR from the EU budget. It is clear that it is possible thanks to the EU SF. However, in different SF co-financing the rate differs from 43 % in FIFG to 24 % in ESF.

Summarising the data about allocation of SF on June 30, 2008, it can be concluded, that the most successful allocation was for FIFG, as it was spent for 100%, while EAGGF– 95%, ESF – 79%, ERAF – 68% of the total planned amount of finances. (1)

Total amount of Structural Funds was planned for particular areas to be developed. Objective 1 Programme for Latvia of 2004-2006 of the Single Programming Document (SPD) contains five priorities:

Table 1

Allocation of Structural Funds in Latvia for 2004-2006 (EUR)

Structural fund	Structural fund, EUR	Co-financing EUR	Total EUR	Structure, %	Co-financing rate, %
ERDF	369 202 826	120 519 994	489 722 820	57	25
ESF	138 698 000	44 130 878	182 828 878	21	24
EAGGF	93 333 000	47 290 004	140 623 004	17	34
FIFG	243 355 000	18 559 793	42 894 793	5	43
Total:	**625 568 826**	**230 500 669**	**856 069 495**	**100**	**27**

Source: http://www.esfondi.lv/page.php?id=567, 21.09.2008.

Table 2

Allocation of Structural Funds by SPD Priorities

Priority	Name	% of planned	% of distribution
1	Promotion of Territorial Cohesion	32.58%	31.4
2	Promotion of Enterprise and Innovation	25.00%	24.3
3	Development of Human Resources and Promotion of Employment	21.22%	20.4
4	Development of Rural Areas and Fisheries	18.49%	21.2
5	Technical Assistance	2.71%	2.6
	Total:	100%	100%

Source: made by the author according to the data, http://www.esfondi.lv/page.php?id=414 and http://www.esfondi.lv/upload/01-strukturfondi/petijumi/report_111108_en.pdf

1. Priority 1 **"Promotion of Territorial Cohesion"** is financed by the European Regional Development Fund, and supports large scale infrastructure investments into public sector. The priority contains four measures.
2. Priority 2 **"Promotion of Enterprises and Innovation"** is also financed by the European Regional Development Fund, and is oriented towards entrepreneurship and promotion of science. It supports formation of new enterprises and increasing competitiveness of the existing enterprises by creating a beneficial environment for knowledge based economy. The priority contains five measures.
3. Priority 3 **"Development of Human Resources and Promotion of Employment"** is financed by the European Social Fund, and its aim is to improve the quality and competitiveness of Latvia's labour force, and lifelong education. The priority contains three measures.
4. Priority 4 **"Development of Rural Areas and Fisheries"** is financed by the European Agricultural Guidance and Guarantee Fund and Financial Instrument for Fisheries Guidance and with respective measures.

5. Priority 5 **"Technical Assistance"**. (http://www.esfondi.lv/page.php?id=567)

Table 2 shows the distribution of the funds by five priorities of the SPD. Almost one third of SF was allocated to improve Infrastructure, to provide opportunity to develop territories, like roads, bridges, sewage systems, modernisation of heating systems etc. Big amount of the SF was invested in human recourse development as well, mostly in education and science to be developed. As well big part of the FIFG that was meant for rural development and fishery was spent on modernisation and innovative technologies. (6)

There are differences between planned and real situation, as it was at risk to lose some amount of the SF, as there were no projects to be implemented. So, the structure was changed to make allocation of SF more effectively.

Part of GDP is composed by the SF. Table 3 shows the amount and distribution of the EU funds for 2004-2006 as they have actually been spent over the period of 2004-2007 in total of LVL 464 456 244.

During the period of 4 years 77% of total SF was allocated. Allocation still continued during 2008. The

Table 3

Use of the SF and share in GDP for 2004 – 2007, LVL (current prices June 1, 2008)

	2004	**2005**	**2006**	**2007**
Structural Funds	34 504 467	114 218 609	160 762 071	154 971 097
% of total SF	**7.4**	**24.6**	**34.6**	**33.4**
GDP	7 434 454 000	9 059 087 000	11 171 693 000	13 957 410 000
% of SF in GDP	**0.46**	**1.26**	**1.44**	**1.11**
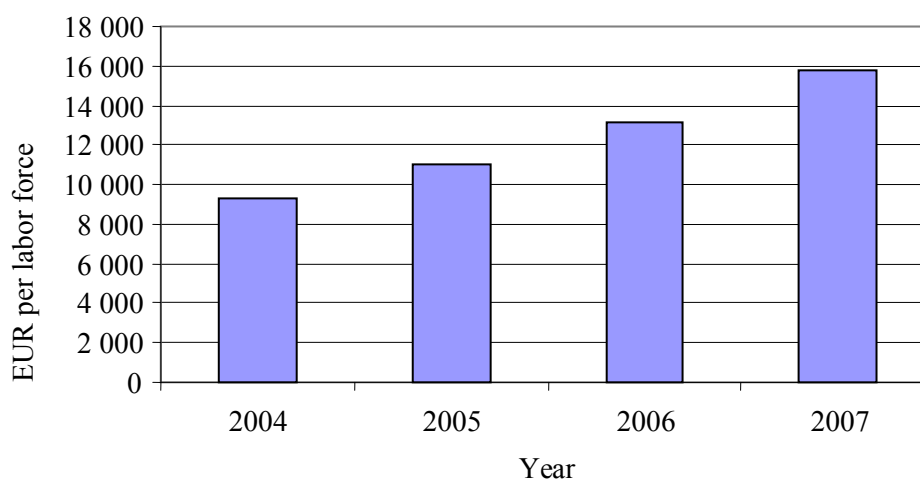
Source: made by the author according to the data from www.em.gov.lv

Figure 4. **Productivity in Latvia for 2004 – 2007, EUR per labour force**

most significant part of GDP of Structural Funds was observed year 2006.

Investing in enterprises should reduce costs by implementing new technologies and employing high skilled labour force, thus it should increase productivity in the country. By productivity we understand the ratio of the quantity and quality of units produced to the labour per unit of time expressed in terms of money. Productivity in Latvia is one of the lowest indicators comparing with average in the European Union.

The speed of productivity growth is not at the same level as the growth of GDP that can be explained by the fact that return on investment can be seen within couple of years according to the sector where investments are done. Not always productivity can be measured as produced goods for an employee. There may be other factors as motivation, knowledge, and experience of employee, influencing the increase of productivity. This gap can be explained as well by the decrease in the number of employed persons – the increase of unemployed persons and persons expatriating to other countries is a common aspect for this period of research.

The research of SIA "Baltic Project Consulting" (2008) concludes that the funds reimbursed from the Structural Funds have been mainly directed to the development related goals, e.g., purchase of equipment and training. It is concluded that the funds reimbursed from the Structural Funds have had a positive impact upon the national economy since they have supported competitiveness of the companies and labour force. (1)

Allocation of the SF was planned up to 2008. In the period from 2004 to 2007 the amount of GDP was LVL 41 622 644 thousand, so it can be concluded that the EU SF makes ca. 1% of the total GDP in Latvia, which is 3 to 7 times less than in other EU countries. It can be compared with the structural intervention in the amount of 6.9%, 6.6%, 4.2% and 3.1% respectively of GDP in Greece, Portugal, Ireland, and Spain (1994 – 1999). (2)

Anyway, Pilvere I. (2007) has an opinion that the Structural Funds financing plays a significant role in the technological modernisation in agriculture and thus also in the increase of labour productivity and quality of production, nevertheless the new pace of agriculture machinery acquisition is not sufficient. (11)

Conclusions

1. The Structural Funds compose 6% of investment and ca. 1% of GDP in the period from 2004 to 2007.
2. The hypothesis was that investing the SF in Latvia's economy has impact on the growth of productivity. The results show that it has a very small impact on Latvia's economy comparing with total investment and the amount of GDP. So the hypothesis is rejected.
3. There are other factors to be researched for the influence on productivity growth.
4. Still the EU Structural Funds have a significant influence on the development of certain sectors of economy.

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Kopsavilkums

Kopš 2004.gada Latvijas ekonomikā ir iespējams piesaistīt Eiropas Savienības strukturālos fondus, kas ir daļa no kopējām investīcijām, kas veicina Latvijas attīstību. Veicot pētījumu tika noskaidrots, ka kopš Latvija ir ES dalībvalsts investīciju pieaugums ir viens no straujākajiem Eiropas Savienībā, kaut arī investīcijas uz vienu iedzīvotāju ir viens no zemākajiem rādītājiem, kam ir tendence palielināties. Investīcijas sastāda apmēram 35 % no Latvijas IKP, kas ir augsts rādītājs.

Uzsākot struktūrfondu piesaisti, uzņēmējiem radās iespēja izmantot šo finansējumu, lai attīstītu savu uzņēmumu: ieviestu jaunas tehnoloģijas, radītu jaunas darba vietas, apmācītu darbaspēku. Valsts mērogā finansējums palīdzēja attīstīt infrastruktūru. Šādu līdzekļu ieguldīšana tautsaimniecībā rada iespaidu, ka Latvijas izaugsme nākotnē ir nodrošināta. Tāpat būtu jāpalielinās produktivitātei (viena strādājošā saražotās produkcijas vērtībai). Tomēr nevar viennozīmīgi vērtēt produktivitātes jēdzienu sakarā ar dažādu nozaru ražošanas gala rezultātu daudzveidību.

Veicot pētījumu, tiek konstatēts, ka: strukturālie fondi sastāda tikai 6% no investīcijām un 1 % no IKP laika periodā no 2004. – 2007. gadam, kas ekonomiski ir nenozīmīgs lielums; produktivitāte Latvijā ir viena no zemākajām Eiropas Savienībā, kaut arī tai ir tendence palielināties; ir nepieciešams veikt detalizētāku pētījumu par strukturālo fondu piesaisti konkrētām nozarēm, lai analizētu to ietekmi uz nozares attīstību.

Patērētāju riska novērtējums SIA "Ventspils Reiss" pasažieru pārvadājumos
Evaluation of Consumer Risks in the Passenger Traffic of "Ventspils Reiss" Ltd

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Abstract
The paper provides the information for the research period of 2005 - 2007 for passenger traffic in "Ventspils reiss" Ltd. As a result the research focuses on the risk analysis method - FMEA (Failure Mode and Effects Analysis) in the passenger traffic. This is the first research in Latvia, and analogical FMEA research in the passenger traffic is not met in the literature available.
Key words: risk appraisal, FMEA method, error, consumer interests.

Ievads

Ikviena uzņēmuma, kas nodrošina pasažieru pārvadājumus, prioritāte ir kvalitatīva un droša pakalpojumu izpilde visos veiktajos maršrutos. Kvalitatīvi izpildīts reiss ir atkarīgs no daudziem faktoriem, kurus uzņēmums ir vai nav spējīgs ietekmēt. Viena no izplatītākajām, kvalitāti uzlabošām metodēm ir "Cēloņu un rezultātu diagramma", ar kuras palīdzību var apzināt un pārskatāmi attēlot diagrammā visus procesa izpildi ietekmējošos faktorus, tajā skaitā arī iespējamos maršruta autobusa reisa izpildi ietekmējošos faktorus.

Pētījuma rezultātā izstrādāta cēloņu – rezultātu diagramma, kurā norādīti visi SIA „Ventspils reiss" pasažieru pārvadājumu kvalitāti ietekmējošie riska cēloņi (skat. pielikumā.)

Pēc *Cēloņu un rezultātu diagrammas* nav iespējams novērtēt iespējamo kļūmju svarīgumu un rašanās iespējas. Līdz ar to nepieciešamas citas, padziļinātas analīzes metodes, kā **FMEA (*Failure Mode and Effects Analysis*) – iespējamo kļūmju un seku analīze.** Līdz šim FMEA metode ir sekmīgi pielietota ASV un Japānā, aktīvi tiek ieviesta Eiropas Savienībā produktu ražošanas sfērā, lai savlaicīgi atklātu un novērtētu produkta konstrukcijas vai procesa iespējamās kļūmes, to sekas un cēloņus, noteiktu korektīvās darbības kļūmju novēršanai vai samazināšanai**.** Nekur pieejamajā literatūrā nav satopami pētījumi, kur FMEA metode tiktu pielietota pasažieru pārvadājumu un to radīto risku analīzei. Pašreiz Latvijā neviens nav veicis iespējamo risku analīzi pasažieru pārvadājumos. Autori sadarbībā ar SIA "Ventspils Reiss" nolēma veikt pētījumu, pielietojot FMEA metodi. Šī metode ļauj atrast un labot kļūdas pirms to rašanās un rast iespēju to savlaicīgai novēršanai. Pētījums ilga 2 gadus, kā rezultātā autori ieguva interesantus datus un secina, ka šo metodi var izmantot arī pakalpojumu risku noteikšanai un to savlaicīgai novēršanai.

Darba mērķis: Noteikt un izanalizēt riskus iespējamos patērētājiem, un to samazināšanas iespējas SIA "Ventspils Reiss" pasažieru pārvadājumos, izmantojot FMEA metodi.

Uzdevumi mērķa izpildei:
— Noskaidrot FMEA metodes būtību un pamatmērķi;
— Veikt FMEA metodes praktisku pielietojumu pakalpojumu sfērā, izmantojot SIA "Ventspils Reiss" bāzi;
— Novērtēt SIA "Ventspils Reiss" iespējamos riskus, izmantojot uzņēmuma pieredzi;
— Dot priekšlikumus FMEA metodes pielietošanai pakalpojumu sfērā.

Materiāli un metodes: Pētījumā izmantoti: literatūra par kvalitātes vadības sistēmām, autoru personīgie pētījumi pasažieru pārvadājumu uzņēmumā SIA "Ventspils Reiss", organizācijas nepublicētie materiāli, interneta materiāli. Informācijas ieguvei veikts pētījums, kā rezultātā iegūtie dati analizēti, izmantojot FMEA metodi. Datu iegūšanai izmantotas novērošanas, aptaujas, aprēķinu u.c. metodes.

Rezultāti: Risinot pētījuma uzdevumus, vispirms noskaidrojām FMEA metodes mērķus, būtību, kritērijus un izvērtējām iespēju šo metodi pielietot pakalpojumu sfērā.

1. FMEA metodes pamatmērķi un kritēriji

FMEA ir **sistemātisks darbību kopums**, kā rezultātā tiek atklātas un novērtētas produkta konstrukcijas vai procesa iespējamās kļūmes, to sekas un cēloņi, noteiktas **korektīvās darbības**, ar kuru palīdzību var novērst vai samazināt radušās kļūmes un **preventīvās darbības**, ar kuru palīdzību var novērst vai samazināt iespējamo kļūmju parādīšanās iespējamību, kā arī visu šo darbību dokumentēšana.

Ar FMEA metodes palīdzību iespējams izskatīt visas iespējamās kļūmes, kuras rodas produkta izmantošanas vai procesa darbības laikā. FMEA balstīta uz konstrukcijas vai procesa attīstību, lai samazinātu kļūmju parādīšanās risku un dokumentētu FMEA veikšanas procesu. (Кумэ Х., 1990).

FMEA metode attīsta nepārtrauktu konstrukcijas vai procesa uzlabošanos un profesionālu pieeju radušos kļūmju novēršanā, izmantojot korektīvās darbības, pirms produkts ir sasniedzis klientus, kā arī nodrošina augstu peļņas, kvalitātes un drošuma iegūšanas iespējamību.

FMEA paredzēta, lai noteiktu, novērtētu un novērstu iespējamās konstrukcijas vai procesa kļūmes un sekas un noteiktu kļūmju paradīšanās cēloņus.

FMEA metode ir noderīga gan ražotājam, gan klientam.

Izdala divus FMEA analīzes metodes veidus – konstrukcijas un procesa FMEA.

Konstrukcijas FMEA paredzēta, lai pārliecinātos, ka produkts ir atbilstoši izplānots, ievērojot visas klientu vēlmes, un izstrādāts kā kvalitātes nodrošināšanas un peļņas gūšanas mērķis. Konstrukcijas FMEA veikšana notiek gan izstrādājamam produktam, gan jau esošam produktam. Analīzes mērķis ir atklāt produkta iespējamās kļūmes, tādejādi samazinot risku tām parādīties.

Procesa FMEA paredzēta, lai novērtētu procesa piemērotību ražojot produktu, kuram ir veikta konstrukcijas FMEA. Procesa FMEA nosaka arī procesa un produkta vadības metodes, kuras jāīsteno produkta veiksmīgākas ražošanas nodrošināšanai. Procesa FMEA analīzi var veikt produkta ražošanas procesam, biznesa (dokumentu aprites, finanšu procesam utt.) un produkta izmantošanas procesam. (Crow K. 2002)

Šādas analīzes veikšanas mērķis ir prasību noteikšana tādiem produktiem, kuri nodrošina drošību un klientu apmierinātību, tas ir, izejas datu sagatavošana gan produkta plānošanas procesam, gan turpmākai produkta analīzei.

FMEA metodes pielietošanas rezultātā var iegūt konstrukciju vai procesu bez nozīmīgiem *mīnusiem*, turklāt uzreiz, nevis pēc ražošanas uzsākšanas. Ārzemju uzņēmumu pieredze rāda, ka manāmi rezultāti parādās pēc 12-18 mēnešu ilgas metodes apgūšanas. Pēc tam tiek nodrošināts noturīgs pozitīvs efekts turpmākā uzņēmuma darbībā.(Gary J., 2002). Sākumā izmaksas ir lielākas kā ieguvums no FMEA, bet apmēram pēc diviem gadiem FMEA pielietošana sāk atmaksāties.

Ārzemju speciālisti, kas izgājuši FMEA apmācību un veikuši iespējamo kļūmju un seku analīzi, uzskata to par noderīgu un pat nepieciešamu uzņēmumiem un iesaka aizliegt konstrukcijas vai procesa plānošanu un realizēšanu bez FMEA pielietošanas. Lielākā problēma FMEA metodes ieviešanā saista ar nepietiekamu augstākās vadības izpratni par FMEA metodes pielietošanu un speciālistu trūkumu, tādēļ nepieciešams ieviest FMEA apmācības. FMEA ir ļoti noderīga un efektīva iespējamo kļūmju novērtēšanā un to rašanās riska samazināšanā, kā arī kļūmju parādīšanās cēloņu noteikšanā.

Riska pakāpes RP skaitlisko vērtību visām iespējamām kļūmēm nosaka pēc 1. formulas, kā triju lielumu N, P un A reizinājumu.

$$RP = N \times P \times A \qquad (1.),$$

kur:
- **N - nozīmīgums** -iespējamo kļūmju seku nozīmīguma kritērijs (no 1 līdz 10 pakāpei);
- **P - parādīšanās** — iespējamo kļūmju cēloņu parādīšanās kritērijs (no 1 līdz 10 pakāpei);
- **A - atklāšana** - iespējamo kļūmju cēloņu atklāšanas kritērijs (no 1 līdz 10 pakāpei).

RP skala $1 \div 1000$, kur 1 - ideāls gadījums, 1000 - nelabvēlīgs gadījums.

Kļūmes ar riska pakāpes vērtību lielāku par 125 (kritiskas riska pakāpes robežas RP_{rob} lielums ir $100 \div 125$) pirmām kārtām pakļaujas novēršanai. RP pielieto, lai tā palīdzētu noteikt vissvarīgākos riskus, norādot uz korektīvām darbībām. (Crow K. 2002)

2. FMEA veikšanas kartība

SIA „Ventspils Reiss" tika izveidota FMEA darba grupa, kurā tika iekļauti kvalificēti uzņēmuma nodaļu speciālisti, kas saistīti ar analizējamā procesa darbības posmiem, un labi izprot uzņēmuma darbības specifiku un apskatāmos procesus. Regulāri tika veiktas darba grupas sapulces, (kas pēc būtības tika organizētas kā „prāta vētra"), kurās tika izskatīti visi procesa darbības posmi un noteikti visi nepieciešamie kritēriji FMEA analīzes veikšanai. Rezultātā tika noteiktas visas iespējamās kļūmes, sastādīts iespējamo kļūmju seku saraksts, atbilstoši dalībnieku novērojumiem un ieteikumiem, kā arī izstrādāti iespējamo kļūmju, to seku un cēloņu novērtēšanas kritēriji, kas apkopoti 1.tabulā.

1. tabula

Procesa FMEA kļūmju novērtējuma kritēriji un pakāpes
FMEA process of shortcoming assessment criteria and grade

Pakāpe	N vērtējums Seku nozīmīgums	P vērtējums Parādīšanās biežums noteiktā laika posmā	A vērtējums Atklāšanas iespējamība
10	**Katastrofāla ietekme**- drošības zudums bez brīdinājuma	Gandrīz vienmēr > 1 līdz 2	Parasti netiek atklāts
9	**Ļoti nopietna ietekme** – drošības zudums ar brīdinājumu	Ļoti augsta 1 līdz 3	Ļoti reti tiek atklāts
8	**Max pieļaujama ietekme**- primāro f-ju 100% zudums, nerealizējams pārvadājumu process	Augsta 1 līdz 8	Reti tiek atklāts
7	**Liela ietekme** – pārvadājums ne visai drošs	Pietiekami augsta 1 līdz 20	Ļoti zema atklāšanas iespējamība
6	**Nozīmīga ietekme** – dažas darbības nav iespējamas, klienti un uzņēmums neapmierināti	Vidēja iespējamība 1 līdz 80	Zema atklāšanas iespējamība
5	**Manāma ietekme** – nav ērts pārvadājums, bet realizējams, samazinātas darbaspējas	Zema iespējamība 1 līdz 400	Vidēja iespējamība
4	**Nenozīmīga ietekme** – pakalpojumu nepieciešams uzlabot, jo vairums klientu pamana kļūmi	Reti 1 līdz 2000	Vidēji augsta iespējamība
3	**Vāja ietekme** - daļa klientu pamana kļūmi, pakalpojums drošs	Ļoti reti 1 līdz 15000	Augsta iespējamība
2	**Ļoti vāja ietekme** atsevišķas kļūmes	Vienreizēji gadījumi 1 līdz 150000	Ļoti augsta iespējamība
1	**Nav nekādas ietekmes**	Tikpat kā nekad nerodas < 1 -1500000	Parasti netiek atklāts

Avots: Autoru izveidota

Katrai iespējamai kļūmei noteica iespējamās sekas. Ja kļūme var radīt vairākas sekas, tad katrai tiek veikts atsevišķs ieraksts. Kļūmju sekām tika noteikts nozīmīgums **(N)**, piešķirot atbilstošu pakāpi no 1 līdz 10. Ja darba grupa nevarēja vienoties par atbilstošu pakāpi, tika veikta balsošana. Iespējamo kļūmju sekas un seku **nozīmīguma pakāpe (N)** dokumentēta 2.tabulā.

Katrai iespējamai kļūmei tika noteikti iespējamie cēloņi un novērtēta kļūmju cēloņu parādīšanās iespējamība, piešķirot atbilstošu pakāpi no 1 līdz 10. Iespējamo kļūmju cēloņi un to **parādīšanās pakāpe (P)** tika dokumentēta. Pirms pakalpojuma piedāvāšanas klientam, tika novērtēta katras kļūmes atklāšanas iespējamība, piešķirot atbilstošo **atklāšanas pakāpi (A)** no 1 līdz 10. Visi iegūtie dati apkopoti vienā procesa FMEA veidlapā

Nr.5. Šī veidlapa parāda kopējo ainu uz procesa FMEA veikšanas rezultātiem (skat. 3.tabulu). 3.tabulā ir parādīts piemērs ar 4 apskatītajām, iespējamām kļūmēm.

Visām kļūmēm tika izskaitļotas riska pakāpes vērtības RP. Pēc izskaitļotām RP vērtībām SIA „Ventspils Reiss" var secināt, ka, pētījumu periodā, izpildot maršruta autobusa reisus, vairumā iespējamo kļūmju gadījumos riska pakāpe nepārsniedz kritisko robežu RP$_{rob}$·, kura uzstādīta līmenī 100 ÷125. Pavisam tika apskatīti 129 iespējamie kļūmju gadījumi 4.tabulā uzrādītajām četrām galvenajām operācijām, saistītām ar reisa izpildi. Tomēr autobusa izbraukuma sagatavošanas procesā no 58 pētījumā izvērtētajiem kļūmju seku un cēloņu kritērijiem 11 kritēriji ir paaugstinātā riska pakāpes robežā vai virs tās, kas kopā sastāda

2.tabula

Kļūmju seku nozīmīguma (N) vērtības
Values of shortcoming effect importance (N)

Kļūdu potenciālās sekas		N
1.	Netiek veikta reisa izpilde	7
2.	Ceļu satiksmes negadījums	7
3.	Autobusa defekts	3
4.	Pasažieri gūst traumas	9
5.	Cilvēku bojāeja	10
6.	Sods no kontrolējošo iestāžu amatpersonām	1
7.	Pasažieri netiek nogādāti	7
8.	Autobuss kavējas	4
9.	Tiek aizkavēta reisa izpilde	6
10.	"Invalīds" netiek nogādāts	7
11.	Neapmierināts klients	6

Avots: Autoru izveidota

3.tabula

Procesa FMEA 5. Veidlapas fragments
FMEA process 5. Blank extracts

FMEA		Rasējuma parakst. dat:	Izsrād: Uzvārds/nodaļa/tel.						
Procesa FMEA		Izstrādāsanas dat.: 17.06.2007.							
Process: Maršruta autobusa reisa izpilde		Pēdējo korekciju dat.:							
Pašreizējais stāvoklis								Uzlabotais stāvoklis	

Sīkāk veicamās operācijas	Potenciālās funkcionēšanas kļūmes	Potenciālās kļūmu sekas	Potenciālie kļūdu cēloņi	Pare-dzamās pārbaudes	P	N	A	RP	Koriģējoši pasākumi I=ieteik./ R=realiz	P	N	A	RP
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Autobusa sagatavošana darbam	Nepareizi veikts remonts	Netiek veikta reisa izpilde	Remontpers kvalifikācijas trūkums	P 1	2	7	3	42					
Autobusa izbraukšana reisā	Autovadītājs nav ieradies darbā	Netiek veikta reisa izpilde	Autovadītāja veselības stāvoklis	P 24	3	7	3	63					
Reisa izpilde	Ceļu satiksmes negadījums	Pasažieri gūst traumas	Autovadītāja neuzmanība	P 14	3	9	5	135	I/ Autovadītāju apmācība	2	9	5	90
Reisa izpilde	Autobuss salūzt	Ceļu satiksmes negadījums	Materālu nogurums	P 25	9	8	4	288	I/ Jāmaina autobusi	2	8	4	64

Avots: Autoru izveidota

4.tabula

**Paaugstinātā riska pakāpes cēloņu un seku kritēriju
izvērtējums SIA „Ventspils Reiss"
High grade risk reason and effect criteria evaluation in "Ventspils Reiss" Ltd**

Veicamās operācijas	Riska cēloņu un seku kritēriju skaits				
	Kopā	RP:100-125		RP virs 125	
		g a d ī j u m u skaits	%	g a d ī j u m u skaits	%
Autobusa sagatavošana	58	3	5,17	8	13,8
Autobusa izbraukums reisā	17	-		1	7,7
Pasažieru uzņemšana	13	1	7.7	4	30,8
Reisa neizpilde	41	2	4.88	10	24,4
Kopā	**129**	**6**	**4.65**	**23**	**17.8**

Avots: Autori pēc pētījuma datiem

19% no kuriem savukārt 13, 8% kritēriju ir virs kritiskās riska robežas, kas vadībai liek nopietni domāt pie pārvadājumu kvalitātes uzlabošanas. Pētījuma dati risku izvērtējumam apkopoti 4.tabulā.

Izskatot kritiskās kļūmes un nosakot korektīvās darbības, tika izvērtēts, kurš no kritērijiem bija kritiskais punkts, kas radīja kritisko riska pakāpes vērtību, un kuru no kritērijiem būtu jāpaaugstina, bet kuru jāsamazina.

Turpmākajā darbībā tika noteiktas konkrētas korektīvās darbības un pēc FMEA rezultātiem sastādīts korektīvo darbību plāns (protokols). Pēc korektīvā plāna izstrādāšanas atkārtoti tiek aizpildīta 5. veidlapa, aizpildot ailes no 10 līdz 14. 10. ailē veic norādi uz korektīvo darbību.

Nosaka kādā secībā jāievieš korektīvās darbības un cik daudz laika nepieciešams katras darbības veikšanai, cik ilgā laikā pēc korektīvo darbību veikšanas sākuma parādīsies ieplānotais efekts, kādas korektīvās darbības nepieciešamas kļūmju, kurām ir augsts riska rādītājs, novēršanai vai samazināšanai; kur (kādā uzņēmuma nodaļā) korektīvās darbības jāveic, kas atbildēs par katras korektīvās darbības veikšanu, un kurš būs konkrēts tās izpildītājs, kāds ir izpildes termiņš, no kādiem avotiem notiks korektīvo darbību finansēšana (uzņēmuma budžeta, citiem avotiem). Jo ātrāk tiks novērstas iespējamās kļūmes, jo zemākas būs izmaksas. Pēc korektīvo darbību izpildes plānā veic attiecīgus ierakstus par darbību izpildi un atkārtoti tiek aprēķināta riska pakāpe RP. Ja neizdevās to samazināt līdz pieņemamām robežām, tiek izstrādātas papildus korektīvās darbības un tiek atkārtoti iepriekšējie FMEA veikšanas soļi. Pēc kļūmju izlabošanas jeb korektīvo darbību

paveikšanas atkārtoti sasauc darba grupu, kuru iepazīstina ar korektīvo darbību rezultātiem un jauno RP. Tad iespējams izlemt vai pietiek ar jau paveiktām korektīvām darbībām, vai nepieciešams veikt papildus darbības. Ja iespējamās kļūmes, to sekas un cēloņi ir mainījušies, tad atkal sastāda FMEA veidlapu. Un tā līdz brīdim, kamēr RP būs zemāks par $RP_{rob.} = 100 \div 125$.

Kad visas kļūmes novērstas vai samazinātas un nepārsniedz kritisko robežu, darba grupas vadītājs noformē FMEA veidlapas, kuras paraksta visi darba grupas dalībnieki. Veidlapai pievieno parakstītus darba grupas sanāksmes protokolus un citus dokumentus. FMEA veidlapa pastāvīgi jāpārskata un jāprecizē. Katrai konstrukcijas vai procesa izmaiņai jābūt precizētai FMEA veidlapā.

Pētījuma periodā autoriem izdevās veikt korektīvās darbības visos 23 kritiskajos gadījumos, kā arī visos 6 vidējā riska gadījumos. Pamatā šīs darbības saistītas ar personāla izglītošanu, jaunu autobusu iegādi, jaunu reisu atvēršanu un rezerves daļu kvalitātes pārbaudi. Uzlabošanas pasākumu rezultātā SIA „Ventspils Reiss" visām iespējamajām kļūdām izdevās riskus (RP) samazināt līdz 100, kas ir labs rādītājs.

Riska pakāpes var būt no 1 līdz 1000. Pie RP = 125 ir vidējs risks.

Ja RP ir virs 125, tad ir jānosaka pasākumi, rika novēršanai. Arī, ja atsevišķi kāds no N, P vai A vērtējums ir lielāks par 8, tad ir jāizskata iespējas ieviest pasākumus, kas šīs vērtības ļautu samazināt. Riska PR vērtību analīzei ieteicams izmantot riska robežu tabulu (skat . 5.tabulu).

Ja RP ir virs 125, tad tiem kļūmju cēloņiem risks ir paaugstināts, un šie riski noteikti ir jāizvērtē, un jānosaka pasākumi, to novēršanai. 6. tabulā ir apkopoti riski, kuru pakāpe SIA „Ventspils Reiss"

5.tabula

Risku robežu tabula
Risk margin table

Riska PR vērtības	Riska novērtējums	Piezīmes
1 - 40	Ļoti zems risks	
41- 70	Zems risks	
71-100	Pieņemams risks	
101-124 100-125	Vidējs (kritisks) risks Kritiskā riska pakāpe (RP$_{rob}$.)	Ieteicams veikt pasākumus riska samazināšanai
125- 600	Ļoti augsts risks	Ir jāievieš pasākumi riska samazināšanai
601 – 1000	Ļoti kritisks risks	Obligāti ir jāveic pasākumi riska samazināšanai

Avots: Autoru izveidota pēc Crow K. Failure Modes and Effects Analysis,2002

6. tabula

SIA „Ventspils Reiss" risku cēloņi ar augstu riska pakāpi
Risk reasons with a high risk grade in "Ventspils Reiss" Ltd

Potenciālais riska cēlonis	Riska (RP)	Riska vērtējums	Piezīmes
Autobusu trūkums	168	Ļoti augsts	Trūkt autobusu
Nav atbilstošas ietilpības autobusi	168	Ļoti augsts	Nav autobusu dažādība
Reisu trūkums	224	Ļoti augsts	Reisu trūkums
Korozija, materiālu nogurums	256 - 360	Ļoti augsts	autobusiem ir iespējami neplānoti lūzumi, kas palielinās saistībā ar autobusu ekspluatāciju
Autovadītāju nolaidībai	105 – 200	Kritisks - Ļoti augsts	Jāveic autovadītāju apmācība
Pārvadājumu menedžera kvalifikācijas trūkums	196	Ļoti augsts	Pārvadājumu menedžeris ir tikko uzsācis darbu šajā specialitātē, un pašreiz notiek apmācības process
Nekvalitatīvas rezerves daļas	98 - 140	Kritisks- Ļoti augsts	Jāuzlabo rezerves daļu kvalitātes kontrole

Avots: Autori pēc pētījuma datiem

7. tabula

Kļūmju potenciālās sekas
Potential effect of shortcomings

Kļūmju potenciālās sekas	N
Pasažieri gūst traumas	9
Cilvēku bojāeja	10

Avots: Autoru izstrādāta

8. tabula

Potenciālie procesa kļūdu cēloņi
Reasons of potential process mistakes

Potenciālie procesa kļūdu cēloņi	P	Piezīmes
Autobusu trūkums	8	Trūkt autobusu
Reisu trūkums	8	Par maz reisu, kas savukārt ir atkarīgs no uzņēmuma tehniskā nodrošinājuma (autobusu skaita)
Neatbilstošs autobuss	8	Nav autobusu dažādība
Materiālu nogurums	9	autobusiem ir iespējami neplānoti lūzumi, kas palielinās saistībā ar autobusu ekspluatāciju
Korozija	8	autobusiem ir iespējami neplānoti lūzumi, kas palielinās saistībā ar autobusu ekspluatāciju

Avots: Autori pēc pētījuma datiem

pārsniedz 125. Dati ņemti no pētījuma 5.veidlapā aprēķinātām RP vērtībām.

Arī, ja atsevišķi kāds no N, P vai A vērtējums ir lielāks par 8, tad tie arī ir jāizvērtē un ja ir iespējams, tad jāveic pasākumi šo parametru samazināšanai. 7.tabulā ir apkopotas kļūdu potenciālās sekas, kuru iedarbība uz pasažieri pārsniedz 8 balles.

Kā redzams tabulā, pasažieriem vissmagākās, sekas ir traumu gūšana, un bojāeja. Šo seku vērtējums ir objektīvs, un nav uzņēmumam iespējas ieviest jebkādus pasākumus, lai šādas seku vērtējumu varētu samazināt. Vienīgā iespēja ir maksimāli samazināt šādu seku rašanās iespējamību, t.i. samazināt P un A vērtības.

Potenciālie procesa kļūdu cēloņi ir ļoti būtiski, drošības nodrošināšanai, un to samazināšanai ir jāpievērš pēc iespējas lielāka vērība (skat. 8.tabulu). Mūsu gadījumā tieši kļūdu cēloņi ir uzņēmuma vājākā vieta, jo daudzu, iespējamo kļūdu, cēloņu vērības pārsniedz ieteicamās robežas.

Kā redzams 7. tabulā tad ļoti liela vērība ir jāpiegriež tehniskajam nodrošinājumam, un jāveic papildus autobusu iegādi, vai arī jāatslogo esošie autobusi. Jāpievērš nopietna uzmanība autobusu tehniskajam stāvoklim, to ekspluatācijas drošībai, izturībai un gatavības koeficientam. Jāizskata autobusu nomaiņas iespējamība pret jauniem un drošiem autobusiem.

Slēdziens
1. FMEA riska analīzes metodi ir iespējams izmantot ne vien riska faktoru noteikšanai preču – produktu ražošanas jomā, bet arī pakalpojumu jomā. Šāds pētījums transporta pakalpojumu jomā – pasažieru pārvadājumos ar autobusiem ir

veikts pirmo reizi Latvijā. Pieejamajā literatūrā nav datu par līdzīgu pētījumu veikšanu transporta pakalpojumos nedz Eiropas Savienībā ne citur pasaulē.
2. Riska aprēķināšanai ir ērti izmantot FMEA metodē piedāvātās veidlapas, kuras dod pārskatāmus rezultātus, t.i. ļoti pārskatāmi redz visas pasākuma veikšanas operācijas, potenciālās kļūmes un to sekas, kā arī visus iespējamos kļūmju cēloņus. Katram riska faktoram blakus ir aprēķināta riska pakāpe. Riska pakāpes kritiskā robeža ir noteikta RP rob. = 100 ÷125.
3. No pētījuma var secināt, ka SIA „Ventspils reiss" sniegtā pakalpojuma risks pētījuma sākuma stadijā bija liels, jo 17.8 % riska faktoru RP bija ļoti augsta riska robežās, bet 4,65 % ir vidēja riska robežās. Veicot koriģējošus pasākumus, izdevās samazināt RP līdz normālam riskam, ievērojami uzlabojot pasažieru drošību.
4. FMEA risku analīzes metode parāda, ka Latvijā kopumā ir ļoti augsta riska pakāpe transporta pakalpojumos, jo SIA " Ventspils Reiss" 17,8 % riska faktoru bija ar ļoti augstu RP, bet tas nav sliktākais Latvijas uzņēmums pasažieru pārvadājumu jomā.

Priekšlikumi
1. Lai nodrošinātu kvalitatīvus un drošus pasažieru pārvadājumus, uzņēmumam SIA „Ventspils Reiss" jāveic tādi risku samazināšanas pasākumi, kā nolietoto autobusu nomaiņa ar jauniem, iegādājoties dažādu ietilpību autobusus; papildus reisu atvēršana; rezerves daļu kvalitātes pārbaudes uzlabošana, jāpilnveido personāla apmācības un izglītošana, gan saskarsmē ar

pasažieriem, gan savu pienākumu pildīšanā. Autovadītājs visvairāk var ietekmēt veiksmīgu reisa izpildi, jo ir tiešais izpildītājs, kas lielā mērā ir atbildīgs par patērētāja drošības nodrošināšanu, tālab autovadītājam ir jābūt augsti kvalificētam, ar augstu atbildības sajūtu.

2. Patērētāju drošības un viņu tiesību aizsardzības labad nepieciešams ar FMEA metodi izvērtēt visu Latvijā piedāvāto transporta pakalpojumu riska pakāpi, kas ļautu savlaicīgi novērst daudzas risku izraisošas kļūmes, samazināt potenciālo risku iespējamību, paredzot to sekas un cēloņus, tā palielinot patērētāju drošību un garantējot tiem kvalitatīvu pakalpojumu sniegšanu.

3. Tā kā pētījums deva pozitīvus rezultātus SIA „Ventspils reiss", autori iesaka ieviest FMEA metodi visos Latvijā esošajos pasažieru pārvadājumu uzņēmumos. Satiksmes ministrijai būtu vēlams iepazīties ar pētījuma rezultātiem, tos izvērtēt, sagatavot darba grupu ministrijas ietvaros, kas iepazīstoties ar piedāvāto FMEA metodiku, spētu ieviest to Latvijā, kā arī sagatavotu projektu par speciālistu informēšanu un izglītošanu risku novērtēšanai un novēršanai pasažieru pārvadājumos .

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Kopsavilkums

Darbā ir apkopoti materiāli par 2005-2007.gadā veikto pētījumu pasažieru pārvadājumu uzņēmumā SIA "Ventspils reiss", kā rezultātā tika izpētīta FMEA metodes pielietošana pārvadājumu risku noteikšanā un analīzē. Līdzīgi pētījumi, kur FMEA metodi pielietotu pasažieru pārvadājumu risku analīzei, pieejamā literatūrā nav sastopami.

Atslēgas vārdi: riska pakāpes novērtējums, FMEA metode, kļūme, patērētāju intereses.

Maršruta autobusa reisa neizpilde

Autovadītājs

Neprofesionalitāte

Darba apstākļi
Informācijas trūkums
Reakcijas trūkums
Pieredzes trūkums
Apziņas trūkums

Bezatbildība

Ārkārtas apstākļi
CSN
Palīdzība cietušajiem
Katastrofa
Huligānisms

Ģimene
Nelaimes gadījums
Veselība

Ceļa segums
Apledojis
Boj ts
Negaiss
Putenis
Migla
Laika apstākļi

Nelaimes gadījums

Transportlīdzeklis

Trauma

Veselība
Darba apstākļi
Pasažieri
Ceļa segums
Vadības meh.
Vibrācija
Klimats
Transportlīdzeklis
Ģimene
Finanses
Kolēģi
Draugi
Nesaskaņas
Ģimene
Svinības
Izklaides

Atpūtas trūkums
Trauma
Mazs bērns
Veselība
Ģimene

Darba režīms
Darba devējs

Pārslodze

Dispečers
Darba organizācija
Mehānika nolaidība

Informācijas trūkums

Neatbilstība ekspluatācijas prasībām
Ritošā sastāva trūkums
Mehāniķis
Paviršība
Nolaidība
Laika trūkums

Neparedzami gadījumi
Korozija
Finanses
Mehāniķa nolaidība

Metāla nogurums

Lūzums

Remontpersonāls
Pieredzes trūkums
Motivācijas trūkums
Izglītības trūkums
Finanses
Nekompetence
Darbaspēka trūkums

Laika trūkums
Darba organizācija

Rezerves daļas
Finanses
Brāķis
Nolaidība

Nekvalitatīvs remonts

Transportlīdzeklis

Organizēšanas nepilnības

Nav izziņota reisa atcelšana
Atbildīgo darbinieku nolaidība
Dispečera nolaidība
Mehānika nolaidība

Nav nepieciešamās dokumentācijas
Autovadītāja bezatbildība
Nav pieprasījuma
Laiks

Nepareiza darba organizācija
Reiss nav ieplānots
Autobusu trūkums
Dispečera kļūda
Mehānika nolaidība
Maršruts

Nav pasažieru
Nav informācijas

Reisam nebija jākursē
Nozīmīgāks norīkojums

Nav autobusa
Autovadītāja bezatbildība
Autobuss novirzīts citur
Dispečera kļūda
Līniju mehāniķa kļūda

Ceļu satiksmes negadījums (CSN)

Autovadītāja rīcība
Darba apstākļi
Pasažieri
Ceļa segums
Vadības meh.
Vibrācija
Klimats
Transportlīdzeklis
Blakus apstākļi
Veselība
Ģimene
Svinības
Neuzmanība
Izklaides
Neuzmanība
Kvalifikācijas trūkums
Reakcijas trūkums
Ģimene
Finanses
Kolēģi
Draugi

Mazs bērns
Veselība
Trauma
Nesaskaņas
Atpūtas trūkums
Darba režīms
Darba devējs

Kvalifikācijas trūkums

Citu personu rīcība
Vecums
Iedzimtas slimbas
Nogurums
Reakcijas trūkums
Medikamenti
Alkohols
Psihotropās vielas

Laika apstākļi
Negaiss
Putenis
Migla

Apstākļi
Zvērs
Remonts
Citi apstākļi
Bojāts
Slidens
Ceļa segums

Neparedzami gadījumi
Korozija
Finanses
Mehāniķa nolaidība

Metāla nogurums

Lūzums

Remontpersonāls
Darbaspēka trūkums
Izglītības trūkums
Pieredzes trūkums

Laika trūkums
Darba organizācija

Rezerves daļas
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Brāķis
Nolaidība

Nekvalitatīvs remonts

Economic Science for Rural Development   Nr. 18, 2009: 246.-254.

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ISSN 1691-3078

Expenditure on Education in Rural Communes within the Impact Zone of the Szczecin Metropolitan Area

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Abstract

The problem of financing education in rural communes is a very important issue from the point of view of general development of the information society, since the quality of education is a prerequisite for the implementation of knowledge-based economy. The increase of investments in education is a fundamental measure of poverty prevention, whereas its consequences are being manifested, among others, in the sphere of absorption possibilities of the educational system.

The study covered the expenditure on education in rural communes for which the impact of Szczecin as a metropolis is significant from the point of view of accomplishing selected metropolitan functions of the Szczecin Metropolitan Area within the area of these communes. The paper ends with conclusions resulting from the study.

Key words: education financing, rural communes, metropolitan area.

Introduction

Financing of education is one of the key issues referring to rural communes. This problem is a very important issue from the point of view of general development of the information society. However, the formation of the society model in which numerous social groups participate in the social and economic life and derive profits from the economic development is prevented by poverty and large distances to educational institutions, which are mainly situated in large cities.

From this point of view, rural communes may be classified in a different way, according to various criteria. In the context of development of metropolitan areas (covering the area of a large city and communes being functionally connected with it), one may distinguish rural communes that are situated in the impact zone of metropolis; these are both communes situated in the outer zone of the metropolitan area and those directly adjacent to it. It should be emphasised that this type of rural communes deserves a separate analysis; metropolitan functions determined in a given area should be implemented within their territory, which however is not always applied. In communes adjacent to metropolitan areas, there is a conflict between the policy of metropolis and their typical rural character. Searching for regularities being an answer to the question of what factor prevails is connected with carrying on the researches in different fields which refer to respective, frequently various, and metropolitan functions.

This paper aims at determining the specificity of education system development within the territory of rural communes situated in the impact zone of the Szczecin Metropolitan Area on the example of communal expenditures on primary and lower secondary education. It should be emphasised that according to the principle of subsidiarity (Filipiak, 2008), parameters referring to education financing in communes are determined based on a top-down approach and communal authorities themselves have a limited area of freedom in this respect (Chmielnicki, 2007). Each commune is being granted the so-called educational part of total subsidy from the state budget, which is as a rule determined per one student (although modifications are possible in this respect, being connected with the specificity of rural communes). Generally, schools operate in the form of communal budgetary units and are connected with the commune's budget through the method of gross budgeting (Gońda and Kanduła, 2007). When taking the foregoing into consideration, it should be however stated that determination of the general rules of education financing allows, by taking an opportunity of starting researches, a better analysis of its level in selected communes. Furthermore, the aforementioned "margin of freedom" left to communal authorities is also very important, since it refers to the scope of purchasing educational aids as needed by particular schools, therefore an analysis of these problems is also important.

Table 1

Population and number of schools in communes under the study (end of 2007)

Commune	Population	Population per 1 km²	Number of primary schools	Number of lower secondary schools
Bielice	2 952	35	1	1
Dobra Szczecińska	11 707	125	5	1
Kobylanka	5 512	31	3	1
Kołbaskowo	8 312	90	3	1
Stara Dąbrowa	3 570	32	2	1
Stare Czarnowo	3 867	25	1	1

Source: made by the authors

Table 2

Number of primary school students in communes under the study

Commune	2003	2004	2005	2006	2007
Bielice	246	235	246	242	231
Dobra Szczecińska	596	587	556	547	514
Kobylanka	309	308	306	276	271
Kołbaskowo	640	636	659	645	617
Stara Dąbrowa	382	348	329	320	283
Stare Czarnowo	256	246	235	232	208

Source: made by the authors

Methods

The study covered the following communes: Bielice, Dobra Szczecińska, Kobylanka, Kołbaskowo, Stara Dąbrowa and Stare Czarnowo. The communes of Dobra Szczecińska, Kobylanka, Kołbaskowo and Stare Czarnowo are situated within the outer zone of the Szczecin Metropolitan Area that has been functioning since 2003, while the other ones are situated in the impact zone of this area. Moreover, Dobra Szczecińska and Kołbaskowo communes deserve distinguishing as those being situated near the border of Poland and Germany.

For those communes, information was obtained on total communal expenditure and communal expenditures on primary and lower secondary schools in the form of direct inquiries carried out among communal officers and after analysing commune budgets.

Results and discussion

Table 1 presents the most important information referring to the situation of educational system within the area of communes under examination. First of all, the focus was put on the population number and density as well as on the number of primary and lower secondary schools, which is a starting point when taking an opportunity of initiating the next researches referring to the problem under consideration.

Basing on the presented data, it is possible to state that the larger is the population, the larger is the number of primary schools. The commune of Dobra Szczecińska has a larger number of population and thus more primary schools than other communes due to the impact of metropolitan zone and dynamic development of the housing function connected with it. Worth emphasising is the fact that Dobra Szczecińska commune would not satisfy the Eurostat criterion (degree of urbanisation), classifying an area as rural, because its population density exceeds 100 people/km². In the commune of Kołbaskowo, the second with respect to the number of population, a smaller increase in the number of primary schools is observed. Nevertheless, it is possible to state that borderland rural communes have the largest developmental potential with respect to the development of education among communes under the study.

On contrary the rule is that one lower secondary school falls per one rural commune. Proportions have been similarly distributed as far as the number of students in primary and lower secondary schools in

Table 3

Number of lower secondary school students in communes under the study

Commune	2003	2004	2005	2006	2007
Bielice	131	127	126	122	117
Dobra Szczecińska	102	94	92	90	101
Kobylanka	154	140	133	126	133
Kołbaskowo	264	279	284	283	267
Stara Dąbrowa	195	208	200	198	192
Stare Czarnowo	131	130	127	137	122

Source: made by the authors

Table 4

Total communal expenditure in rural communes (in PLN)

Commune	2003	2004	2005	2006	2007
Bielice	3 699 148	4 501 744	4 918 829	5 532 238	6 977 378
Dobra Szczecińska	12 558 399	14 338 085	16 549 458	28 020 974	29 442 970
Kobylanka	8 031 635	8 797 507	10 160 027	19 233 414	17 546 410
Kołbaskowo	22 201 923	14 524 747	14 689 547	18 611 058	21 623 812
Stara Dąbrowa	6 268 269	7 483 795	6 933 831	7 783 250	7 954 094
Stare Czarnowo	6 053 663	5 777 148	6 271 330	8 298 256	9 868 465

Source: made by the authors

communes under the study is concerned (Table 2 and Table 3).

The majority of primary school students are in the borderland rural communes of Kołbaskowo and Dobra Szczecińska, while the least in rural communes of Bielice and Stare Czarnowo. Even though the most primary schools are observed in the commune of Dobra Szczecińska, the most students are observed in the commune of Kołbaskowo. On contrary although fewer students are in the commune of Kobylanka than in that of Stara Dąbrowa, there are more schools. However, one can not look at the problem of school number only from the economic point of view. A commune, while accomplishing public tasks, can not be only guided by economic results but rather by the welfare of its inhabitants. In all examined communes, the number of primary school students in 2003-2007 is characterised by a downward trend (Table 2).

In lower secondary schools, the most students are observed in the commune of Kołbaskowo, while the least in that of Dobra Szczecińska. Low number of lower secondary school students may be induced by the fact that richer parents of students from communes situated near the metropolis more frequently choose for their children the gymnasia from outside the commune area itself, hoping on higher quality of education. This rule finds its application for example in case of Dobra Szczecińska commune, where a difference is clearly visible with respect to the number

of primary school students. Thus, it is possible to conclude that rural communes situated in the impact zone of metropolis base their development on slightly different principles than typical rural communes.

No clear developmental trend is present in case of the number of students in lower secondary schools in communes under the study (Table 3).

Next element of the carried out research is to determine the specificity of expenditure on education in rural communes under the study. With this end in view, total communal expenditures in communes under the study should be brought closer (Table 4).

The analysis of expenditures allows a statement that receipts from own income do not guarantee financial resources practical for full accomplishment of a commune's statutory tasks. Therefore, they are supplemented, among others, with other grants and subsidies from the state budget. It is connected with a principle accepted by the legislator that each of the public tasks being accomplished by the local government unit means a specific amount of budgetary expenditure of these units (Patrzałek, 1999). Grants and subsidies serve as a purpose of rationalisation of the budgetary economy of communes. Nevertheless, it should be emphasised that the Act of 13 November 2003 on the income of local government units increased own earnings but decreased the amount of grants and subsidies (Jędrzejewski, 2007). Possibility of increasing the commune's budget depends on

Table 5

Communal expenditures on primary schools in rural communes (in PLN)

Commune	2003	2004	2005	2006	2007
Bielice	1 297 932	1 778 046	1 322 967	1 200 669	1 029 413
Dobra Szczecińska	2 906 584	3 518 741	3 477 928	3 771 850	4 107 595
Kobylanka	1 654 168	2 093 889	2 549 768	1 951 755	2 166 298
Kołbaskowo	3 339 372	3 710 812	3 594 221	3 872 680	4 335 917
Stara Dąbrowa	1 493 067	1 570 156	1 654 138	1 654 651	1 706 381
Stare Czarnowo	1 363 082	1 129 050	1 195 910	1 269 589	1 369 365

Source: made by the authors

such factors as commune location and character, demographic situation as well as demographic base and the state of commune infrastructure (Rudzka-Lorentz and Sierag, 2007).

The largest level of expenditures has been observed in the communes of Dobra Szczecińska and Kołbaskowo, while the lowest one in those of Bielice and Stare Czarnowo. In the two latter, expenditures in 2003-2007 have increased, whereas in the borderland communes no clear trend occurred in this respect. It should be borne in mind that differences between expenditure levels in communes under the study are significant. Even more comparable are expenditures on primary schools in communes under the study (Table 5).

By expenditures on primary schools in communes one should understand first of all: personal wages and salaries for the personnel, social insurance premiums, Labour Fund contributions, purchase of materials and equipment, purchase of educational and didactic aids, purchase of energy, purchase of repair services, and charges for stationary telephony. The analysis of expenditure types shows that, next to the obligatory elements, one can separate such expenditures like the purchase of didactic or educational aids, which is not always necessary but the development of education level decisively depends on their level. It results from the literature, what should be emphasised, that amounts of educational subsidies do not cover all educational expenditures incurred by local governments, and thereby part of educational task has to be financed from own income of local governments. In practice, larger part of expenditures is assigned to teachers being thus addressed, simplifying, for satisfying the needs of teachers but not students (Lubińska, Franek and Będzieszak, 2007). This negatively affects general educational policy and even a possibility of taking more serious initiative in this respect by local governments. It is worth emphasising that rural communes are being treated preferentially when determining the amount of educational part of the general subsidy for local

governments through conventional raising of the number of students too high and, in consequence, increasing the amount of subsidy (Borodo, 2008). Therefore, according to the "Information on effects of the binding force of the Act of 13 November 2003 on the income of local government units" published by the Ministry of Finance, in 2005 one student in rural communes received a subsidy in the amount of PLN 4401, one student in municipal-rural communes received a subsidy in the amount of PLN 3697, while one student in municipal communes a subsidy in the amount of PLN 3069. Increasing of subsidies still leaves open the problems connected with additional expenditures in rural communes, at least those referring to school transport.

Figure 1 presents expenditures on primary schools in communes under the study divided by using the method of cluster analysis.

Figure 1 confirms the trends indicated earlier: the borderland rural areas form a separate group, while those not being directly adjacent to the commune of Szczecin form another one. This is an evidence of the fact that such factors like distance from the metropolis, number of population, and location in the borderland zone have largest effect on the development of education.

The next element of the research is to determine the amount of expenditures on primary schools in communes under the study per one student (Table 6).

It results from Table 6 that mean expenditures are similar per one student in communes under the study. The largest level of expenditure occurs also in the borderland communes and, additionally, in the commune of Kobylanka, whereas the lowest one in the communes of Stara Dąbrowa and Bielice. It should be stated that in 2007 the amount of expenditures per one primary school student in 3 out of 6 communes under the study (Dobra Szczecińska, Kobylanka and Kołbaskowo) exceeded the mean amount of expenditure falling on the average on one primary school student from rural commune in Poland which
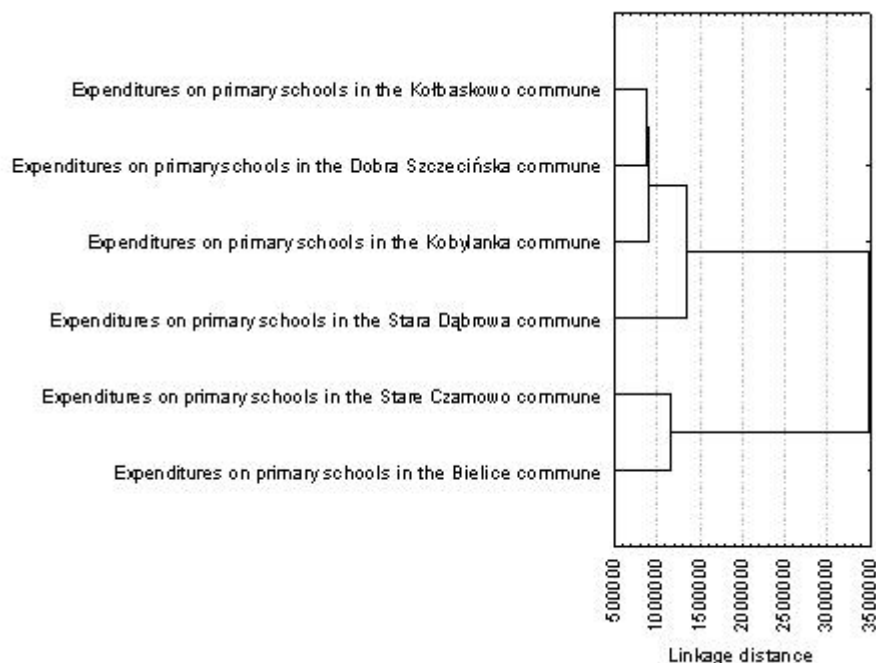
Figure 1. **Cluster analysis for expenditures on primary schools in communes**
under the study in 2002-2007

Table 6

Expenditures on primary schools per one primary school student in communes
under the study (in PLN)

Commune	2003	2004	2005	2006	2007
Bielice	5 276	7 566	5 378	4 961	4 456
Dobra Szczecińska	4 877	5 994	6 255	6 896	7 991
Kobylanka	5 353	6 798	8 333	7 072	7 994
Kołbaskowo	5 218	5 835	5 454	6 004	7 027
Stara Dąbrowa	3 909	4 512	5 028	5 171	6 030
Stare Czarnowo	5 325	4 590	5 089	5 472	6 583

Source: made by the authors

was PLN 6884. It may be thus concluded that rural communes adjacent to the metropolitan area have larger possibilities in assigning own income on the commune's education, through which the most important tasks in communes connected with it can be accomplished. In this connection, expenditures on educational aids and on other elements that are facultative from the point of view of budget but indispensable from the point of view of education in these communes are higher than in other ones.

Expenditures on lower secondary schools in communes under the study are illustrated in Table 7.

It results from Table 7 that a regularity indicated earlier finds its confirmation – the level of expenditure on lower secondary schools in the commune of Dobra Szczecińska is no longer so high like that of expenditure on primary schools in that commune, which is connected with a smaller number of lower secondary school students. The attention is drawn by large expenditures on lower secondary schools in the commune of Stara Dąbrowa, which is an element of the policy of that commune oriented on the development of education. It should be also emphasised that such solutions are imposed to a great extent by the fact that this commune does not directly adjoin Szczecin commune but is only situated in its impact zone, which forces searching for independent solutions (such an initiative was not however taken up in the commune of Bielice). As is the case of primary schools, mean communal expenditures on lower secondary schools

Communal expenditures on lower secondary schools (PLN)

Commune	2003	2004	2005	2006	2007
Bielice	385 383	413 296	491 708	561 718	681 883
Dobra Szczecińska	430 376	474 798	478 490	476 730	505 119
Kobylanka	414 270	442 684	394 071	407 249	382 976
Kołbaskowo	1 046 995	1 247 203	1 347 593	1 526 619	1 647 844
Stara Dąbrowa	1 984 576	1 940 069	1 426 430	1 259 887	1 154 819
Stare Czarnowo	549 325	548 760	525 947	547 272	644 471

Source: made by the authors

Expenditures on lower secondary schools per one lower secondary school student in communes under the study (in PLN)

Commune	2003	2004	2005	2006	2007
Bielice	2 942	3 254	3 902	4 604	5 828
Dobra Szczecińska	4 219	5 051	5 201	5 297	5 001
Kobylanka	2 690	3 162	2 963	3 232	2 880
Kołbaskowo	3 966	4 470	4 745	5 394	6 172
Stara Dąbrowa	10 177	9 327	7 132	6 363	6 015
Stare Czarnowo	4 193	4 221	4 141	3 995	5 283

Source: made by the authors

per one student in communes under the study should be presented (Table 8).

As opposed to expenditures falling on the average on one primary school student in communes under the study, those falling on one lower secondary school student among communes under the study are the largest in the commune of Stara Dąbrowa. It is however the only one commune where a clear decrease in the level of expenditure was recorded in the analysed time period. The level of expenditure in these communes is similar to the mean amount of expenditure falling on the average on one lower secondary school student form rural commune in Poland, which was PLN 5422 in 2007. The lowest level of expenditure was observed in the commune of Kobylanka. Worth noticing is also the fact that expenditures per one lower secondary school student are definitely lower than those falling per one primary school student; it comes first of all from the fact that that there are more primary schools than lower secondary ones in the studied communes, which forces larger expenditures on primary schools. Communal expenditures on children school transport, being specific for rural areas are a separate element of budgetary classification. It should be emphasised that expenditures on children school transport classified

separately would usually constitute approximately 10-20% of the expenditure on primary schools.

Conclusions

Expenditures on primary education in most rural communes situated within the impact zone of the Szczecin Metropolitan Area in relation to one student are higher than the average expenditures appropriated for that in rural communes in Poland. The foregoing opportunity should be taken into consideration when determining the strategy of financing communal expenditures on primary education from the state budget. In the examined group of metropolitan rural communes, the borderland communes should be distinguished, which accomplish their educational function to the highest degree. On contrary the further a given commune is situated from the metropolis, the lesser degree of accomplishing its educational function.

Slightly different situation occurs in case of lower secondary schools. Inhabitants of the rural communes situated within the impact zone of the Szczecin Metropolitan Area much more willingly send their children to lower secondary schools that are located in the area of the metropolis itself, hoping on higher quality of education. Taking the

foregoing into consideration, it should be stated that the metropolitan area constitutes an important factor affecting the development of education in rural areas, which ought to be considered when determining the principles of educational policy in local government units.

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Factors Influencing the Income of Agricultural Farm in the West Pomeranian Province Described in a Poll

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Abstract

The major aim of this paper is the influence of basic characters on farm income as well as the position of direct payments. It seems that only huge farms will benefit from direct payments, and consider its influence on their income. The growth of income will correct economic status of farmers in personal estimate and opinions of lending institutions that considerably improve taking up the development venture. On contrary the stagnating farms will not perceive financial correction; moreover low endowment will make impossible the use of investment support in view of low profitability and lack of proper property insurance. The research has been conducted in the years 2006 – 2007. The research covered 650 owners of arable farms. The research embraced the farms from three parts (belts) of west Pomeranian voivodeship: the seaside belt, the borderline belt, and the neo-agricultural belt.
Key words: age, farm, income, land size, direct payments.

Introduction

Family farms are the basic type of the farms in Poland. This type includes farms functioning very well, very competitive on the market, the owners of which accumulate and then invest accrued financial resources into further development. On contrary there are also stagnating farms, which potential does not allow for any development, and their owners are forced to look for additional or alternative sources of income. Between those extreme cases there is a third group of farms, the so-called semi-subsistence farms. It includes the farms, which economic situation, as opposed to the previous ones, is not constant. They can evolve into the first and the second direction, becoming social farms or, after making necessary investments, becoming competitive on the market. Direct payments and capital investment supports can cause a huge growth of competitiveness of rural farms on the market as well as the increase of economically strong farms in general number. Previously conducted research in aspect of farm modernisation and rural development (Mickiewicz P., 2002, 2006, 2007 and other researchers) indicates that the problem is very important for regional and country development. Especially during the world crisis when investment is generally cut down.

The aim of the research

The major aim of this paper is the influence of basic characters on farm income as well as the position of direct payments. The hypothesis indicates that only huge farms will benefit from direct payments and consider its influence on their income. The growth of income will correct economic status of farmers in personal estimate and opinions of lending institutions that considerably improve taking up the development venture. On contrary the stagnating farms will not be perceive financial correction, moreover low endowment will make impossible the use of investment support in view of low profitability and lack of proper property insurance.

Methods of the research

The research has been conducted in the years 2006 – 2007, and concerns the first period of Polish membership in the European Union, which is identical with the first budgeting period.

The communities of the West Pomeranian Voivodeship have been chosen for the research on purpose. The choice of communities acknowledged the varied conditions of the functioning of arable farms on the evaluated area due to the functional – special arrangement of the voivodeship, which encompasses the division into three belts: the seaside belt, the borderline belt, and the neo-agricultural belt (this division stems from the Strategy of Development of the West Pomeranian Voivodeship to the year 2020).

In each of the communities, a group of arable farms, which are included in the so-called semi-subsistence group, have been chosen in a random manner. The research covered 650 owners of arable farms. The research embraced both the farms, which use the support of the country in the form of financing

agricultural regions, and those which are not the country's beneficiaries (an exception may include direct funds).

In general, the territory of the West Pomeranian voivodeship at the end of 2005 located 71220 arable farms, out of which 41 thousand were farms of the area of 1 hectare. Ten thousand arable farms have been registered on the territory of the examined communities. As a result of the conducted research, 0.9% of arable farms from the territory of the voivodeship have been surveyed, whereas the research trial from the region covered with the research amounted to 6.5%.

The acquired results have been compiled statistically, performing an analysis of variances (ANOVA), the Kruskall-Wallis rank analysis, the correlation of gamma ranks and the Chi – square test. Two types of tests have been used in the rank analysis: the Kruskall – Wallis rank analysis and the correlation of gamma ranks (the equivalent of the parametrical index of correlation of the Pearson ratio momentum).

Results

Besides the benefits given by social-economic transformation there were also its negative effects that intensively touch the rural areas and agriculture in general. In 1989-1994 the real income of farmers dropped by about 56%, while the real income of other people only by 22%. In 1998 the level of income of farmers was only 41.3% compared to their income in 1989. The economic results achieved by the farms were worse than in previous years, mainly due to the sales barrier and reduction of prices obtained by the farmers. The first symptoms of recourse's inhibition were observed in 2000. However, it did not mean significant improvement of farmers' situation (Kołoszko-Chomentowska Z., 2004).

However, Łukaszewicz P., Koszela G. and Orłowski A., (2006) indicated that while comparing the situation of the households, besides the income one has to take into account the basic demographic features as well. It relates to the facts like the size of a farm, the number of children, the age of a person managing the farm and others factors determining the consumption needs connected with the costs of living. Thus the farms are not a homogenous group in which particular units differ only by the incomes and outcomes.

One of the basic parameters defined in the research of a socio – economic character is the age of the respondents. This stems from the fact that in many cases (especially in the agricultural regions), the age of farm owners determines a range of decisions connected with the activity conducted by them. On the territories covered by the research, the average age of the respondents equalled to 43 years, with the scope ranging between 19 and 81 years. Considering the age of the respondents in particular age groups, it has been indicated that the largest group was a group of farmers in the age from 40 to 44 years, which makes nearly 16% of the researched group. However, it should be emphasised that over 37% of the respondents were the owners of arable farms up to 40.

The second most often defined parameter is the education level. As it is shown by the conducted research, the dominating group were the respondents with an agricultural vocational education (21.1%) and with extra-agricultural education (22.5%). However, a fact should be emphasised that, in comparison to the above mentioned data for the examined areas, a considerably small percentage of interviewees was with primary education (about 16%), and twice higher than the country average percentage of interviewees with higher education (9.1%).

The third and the most often defined parameter which has noticeable impact on the activity is the size of the farm. The average area of the examined farms is 29.4 hectares (which several times exceeds the average for Poland), with a very high scope from nearly 0.4 ha to 650 ha. On average, the largest farms occurred in the seaside belt – 31.4 ha, and the smallest ones in the border part of the voivodeship – 29.4 ha.

As it results from the performed research, greater part of the respondents estimated annual incomes as lower than EUR 5 000. One third of the respondents declared incomes between EUR 5 000 and EUR 12 500. The highest incomes – at the level above EUR 50 000 were declared only by 2% of the questioned farmers (Table 1).

The Chi-square analysis showed significant statistical differences only between the seaside zone and the border zone. As it results from the data listed in Table 1, in the first case, the group of the lowest incomes comprised more than 5% respondents. The difference was also found in case of the farmers who declared annual incomes between EUR 12 500 and EUR 25 000. In the seaside zone they equalled to only 4.6% of all respondents, while in the border zone – almost four times more (15.6%).

The analysis of variance showed significant dependence between the profitability of the examined farms and the age of the respondents. The analysis showed that the lowest incomes were found in the youngest and two oldest groups (Fig. 1). In the first case it results from the fact that the youngest farmers (up to 25 years) usually were not able to generate such incomes as their older equivalents. In the second case, as it was indicated earlier, the oldest respondents declared gradual reduction of the agricultural production reflecting in their incomes.

Table 1

General farm income

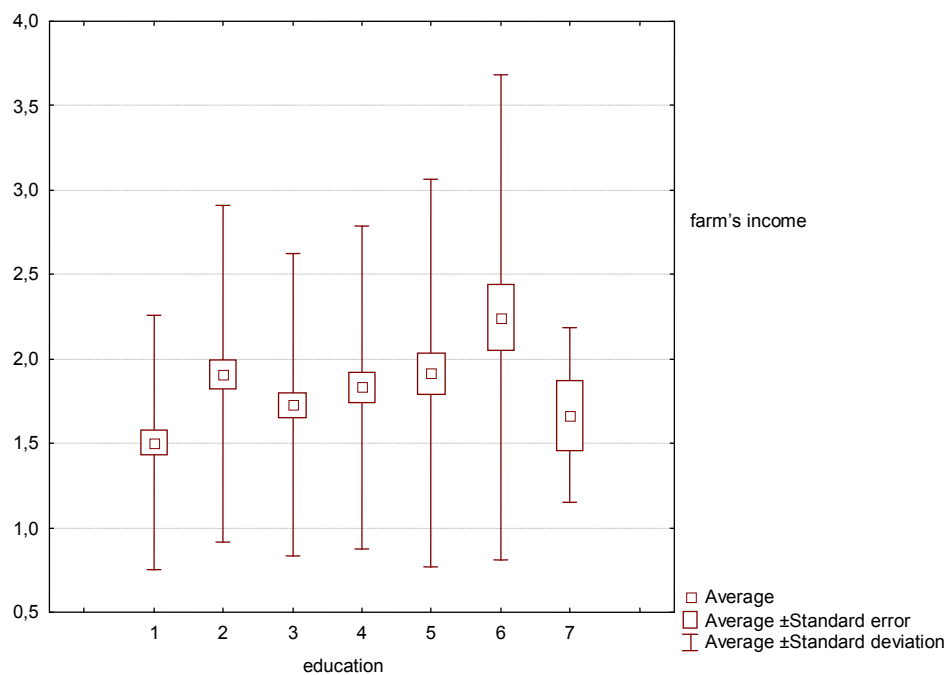| Specification	neo-agricultural belt		borderline belt		seaside belt		Total	
	n	% resp	n	% resp	n	% resp	n	% resp
up to EUR 5 thou.	143	54,4	119	46.3	67	51.5	329	50.6
from EUR 5 to EUR 12.5 thou.	70	26.6	79	30.7	43	33.1	192	29.5
from EUR 12.5 to EUR 25 thou.	30	11.4	40	15.6	6	4.6	76	11.7
from EUR 25 to EUR 50 thou.	15	5.7	13	5.1	12	9.2	40	6.2
above EUR 50 thou.	5	1.9	6	2.3	2	1.6	13	2.0
Total	**263**	**100**	**257**	**100**	**130**	**100**	**650**	**100**

Source: calculations done by the author
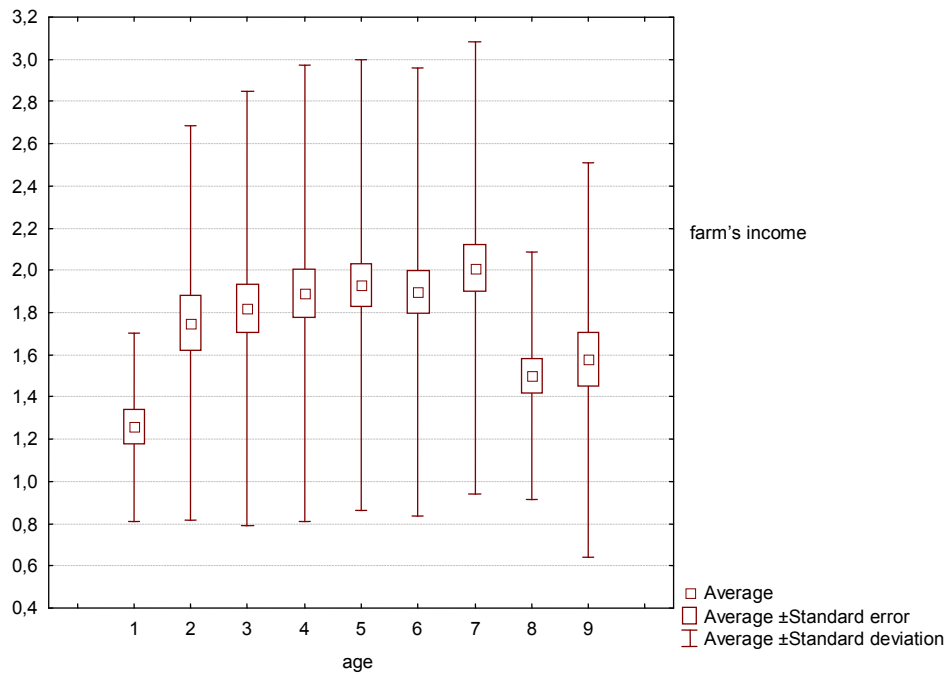
Source: made by the author

Fig. 1. **The relation between the age of the respondents and the level of income**
1- to 24 years, 2 - 25-28, 3 - 29-34, 4 - 35-39, 5 - 40-44, 6 - 45-49,
7 - 50-54, 8 - 55-59, 9 – above 59 years

The next analysis of variance showed that the incomes achieved by the respondents were significantly dependent on the education. The highest incomes were achieved in case of the farmers with higher education in agriculture, the lowest incomes - in case of the secondary and basic schools education (also agricultural ones). It is worth to mention high position of the respondents with the lowest level of education who finished (or not) only the primary school (Figure 2).

It is confirmed by Gołębiewska B. (2005) who found that from 1990 to 2001 the differences in achieved incomes were larger, and larger in favour of people with higher agricultural education. Similar situation was found while calculating the income per 1 ha of the agricultural land. In

Source: made by the author

Fig. 2. **The relation between the level of education of the respondents and the level of income**
1 – basic, 2 – professional, 3 – professional agricultural, 4 – medium, 5 – medium agricultural, 6 – higher, 7 – higher agricultural

Table 2

General income of a farmer's family during the last five years

Specification	neo-agricultural belt		borderline belt		seaside belt		Total	
	n	**% resp**	**n**	**% resp**	**n**	**% resp**	**n**	**% resp**
decrease	44	16.7	49	19.1	43	33.1	136	20.9
the same level	148	56.3	151	58.7	61	46.9	360	55.4
increase	71	27.0	57	22.2	26	20.0	154	23.7
Total	**263**	**100**	**257**	**100**	**130**	**100**	**650**	**100**

Source: calculations done by the author

all years the situation was favouring the farmers with higher agricultural education. In that case the differences have been larger and larger since 1995 (except 1999 when farmers' incomes were generally reduced).

As it results from the analysis of variance, the profitability of the farms depends also on their area. The analysis clearly showed that profitability of the farms increases with the increase of the area owned by the respondents. The area structure of the farms is one of the most essential factors of their economic situation, social position of the people and competitiveness of the agriculture on the international scale. Bad area structure of the farms (size reduction) causes problems related to the profitability of

production and gaining incomes (Poczta W., Wysocki F., 2001).

The analysis of gamma correlation showed also highly significant positive dependence between the incomes gained by the farmers and the period of managing the farms, and opinion of the respondents regarding the development perspectives of their farms. It means that the highest incomes were gained by the farmers who managed them for the longest time and by those whose farms had the greatest perspectives for development.

It was also interesting to get familiar with the dynamics of changes in the profitability of the examined farms. As it results from the data listed in Table 2, the situation in the West Pomeranian

Table 3

The level of farm's production potential utilisation

Specification	neo-agricultural belt		borderline belt		seaside belt		Total	
	n	% resp	n	% resp	n	% resp	n	% resp
used in full	37	14.1	27	10.5	27	20.8	91	14.0
in majority	151	57.4	142	55.3	67	51.5	360	55.4
in half	54	20.5	63	24.5	19	14.6	136	20.9
in minority	21	8.0	25	9.7	17	13.1	63	9.7
Total	**263**	**100**	**257**	**100**	**130**	**100**	**650**	**100**

Source: calculations done by the author
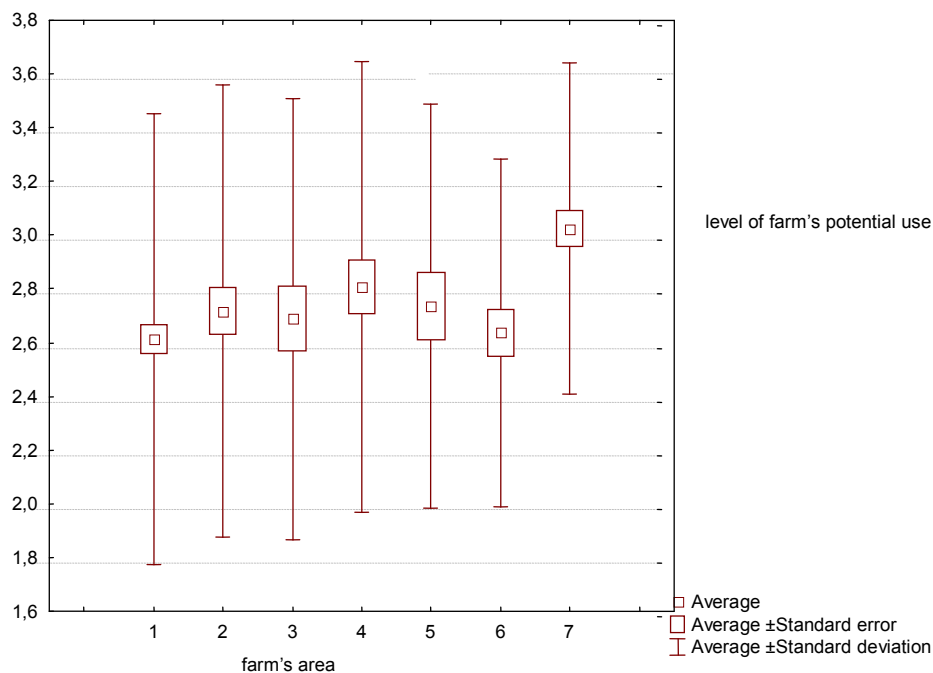
Source: made by the author

Fig. 3. **The relation between the size of respondents' farms and the use of farm potential**
1 – up to 5 ha, 2 -from 5 to 10, 3 - from 10 to 15, 4 – from 15 to 25, 5 –

province was good. Over 55% of the respondents declared that their incomes are stable and remain unchanged, almost 24% of the respondents declared increasing income and only 20.9% considered that their financial situation was worse.

The production is possible thanks to the use of production factors. Usually, three basic production factors are distinguished: work, land and capital. Work is a set of conscious and purposeful actions performed by human that affects and transforms the surrounding environment. Working people change not only their surroundings but also themselves, enhance intellect, gain experience, and modify a way of seeing the world, feelings, and widen the range of their needs. Production and work have social character. People who produce something do not work in isolated places. Their work undergoes connections and mutual integration. Production socialisation process is also expressed in the fact that a given product is an effect of work of more and more people. The land includes, generally speaking, natural resources, i.e., the land itself (agricultural lands, land for urbanisation, recreational land) and all its natural riches (forests, waters etc.). A capital includes things necessary for conducting economic activity – buildings, machines, devices, transport vehicles, tools, raw materials, and stocks of products (that can be defined as physical or subjective capital),

Table 4

The level of direct payments in the respondents' farms (EUR)

Specification.	neo-agricultural belt			borderline belt			seaside belt			Total		
	X	min	max	X	min	max	X	min	max	X	min	max
Direct payments	3221	37.5	44250	3604	25	200000	2796	50	75000	3295	25	200000

Source: calculations done by the author

Table 5

The share of direct payments income in general income

Specification.	neo-agricultural belt			borderline belt			seaside belt			Total		
	X	min	max	X	min	max	X	min	max	X	min	max
Direct payments	0.2	0.01	1	0.4	0.01	35	0.5	0.02	22.5	0.4	0.01	35

Source: calculations done by the author

and financial resources of many kinds, e.g., money and securities like shares or obligations (financial capital) (Chilewski R., Kwiatkowski E., 2005).

Productive potential of the farms was exploited at relatively high level. Over 55% of respondents declared that they used it at high level and 14% of them used all owned production factors. Only one per every ten farmers stated that he or she used owned resources at only low level (Table 3).

The Chi-square analysis showed significant differences only between the seaside and the border zones. In the first case almost 21% of the questioned farmers declared full exploitation of the owned potential and in the second – only 10.5%.

The analysis of variance indicated significant dependence of the use of the productive potential of the farms on their area. As it results from the data included in Figure 3 the best level of use was declared by the owners of the largest farms.

Full use of the farms' potential directly influences the incomes gained by their owners. The analysis of gamma correlation confirmed high and positive dependence between those factors, i.e., the higher the level of productive factors use, and the higher the incomes gained from agricultural production.

In the past few years one could observe interesting and usually positive phenomena showing the occurring processes adaptive to the conditions existing on the market even during a period of deep recession. The phenomena intensified just before and mainly after joining the European Union. Today, even the sceptics have to admire that Polish farms gained a lot due to the financial support in many forms, especially in the form of common direct subsidies (Gorzelak E., 2005).

As it results from the performed research, the level of direct subsidies received by farmers was reaching very different levels depending on the owned area. On average, in Zachodniopomorskie province the amount of subsidies per farm was EUR 3295 with enormous span from EUR 25 to EUR 200 000 (Table 4). Due to the small (on average) amounts received by the respondents, they made only a small percentage of the total income gained by the farmers in the examined farms. On average, according to the respondents' opinion, direct subsidies equalled to only 0.4% of the total income. However, large divergences were found. The share of the financial resources coming from direct subsidies was within the range of only 0.01% and 35%. While considering the above issue in terms of the particular sub-areas, a large difference to disadvantage of inner zone was observed. On average, area subsidies were at the level of 0.2% but the maximum share was only 1% (Table 5).

Direct subsidies were disbursed, in assumption, to improve the financial situation of the Polish farmers and, as it results from the performed research, they partially fulfilled that task. On the area covered by the research, over 45% of the questioned farmers declared that subsidies directly improved their financial situation, while 32.9% respondents were not able to unequivocally answer this question and 21.6% of respondents declared that direct subsidies did not influence their incomes. As it results from the performed research, most often the positive opinion was given by the owners of the largest farms (in terms of area). As described by Rowiński (2003), although part of the farms observes the benefits resulting from introduction of the direct subsidies during the first years in the EU, the financial situation of Polish farmers will be clearly affected not before 2008 when potential direct subsidies from the EU budget will reach a level of 50% of the total payments.

Conclusions

After performing the research it was stated that:

1. Owners of the farms usually can be characterised by the optimal age for agricultural activity (average age was 43 years). The level of education of the respondents was evaluated positive. People with professional agricultural and extra-agricultural education were dominating among respondents. One has to emphasise that only few farmers were educated at primary level, and the number of farmers with higher education was more than twice as Polish on average.

2. Profitability of the farms was different, similarly as the dynamics of changes in that matter. More than half of the respondents declared stable financial situation and about 25% of the questioned farmers declared that their incomes were lower than before. This matter was influenced mainly by the location (the best results were obtained in the border zone), age (the youngest and the oldest farmers achieved the lowest incomes), education and area (profitability was directly proportional to the level of education and area of farms). Productive potential of the farms was exploited at relatively high level in half of the cases, especially by the farmers of the seaside zone and the ones having the largest areas.

3. Financial resources obtained from direct subsidies were only a small share of the gained total income. Thus only less than a half of the questioned farmers declared that direct subsidies directly influenced the improvement of their financial situation (they were assigned mainly for investments and consumption). One per every five respondents did not notice any changes.

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