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Turinys / Contents

Editorial

"Journal of Management" is periodically published applied sciences journal by Lithuanian Business University of Applied Sciences. It is being published since 2002 and already has solid experience. During this period there was a change in journals form, structure and content. Journal has been positively evaluated by foreign scientists, as number of them publishing is constantly increasing. There is a possibility to submit articles in English and Lithuanian languages. Now 27 th number of the journal is being released to readers. Only thoroughly selected articles by editorial board are being published. Authors of these articles represent various Lithuanian and foreign countries science, education and business institutions, such as Lithuania Business University of Applied Sciences, Klaipeda University, Kaunas University of Technology, Szent István University (Hungary), Baltic International Academy (Latvia), Dubnica Technology Institute (Slovakia), Jan Kochanowski University in Kielce (Poland) and other institutions.

The journal provides opportunity for academics and professionals to interact and communicate in international forum. Applied research journal „Journal of Management" Editorial Board goal is to achieve that published articles will analytically describe foreign countries economical, business and technological environment. These criteria will be evaluated while selecting articles. So, we expect that when readers get familiar with published articles, they will be able to find new and thoughtful material.

Five articles in the journal are being presented by Hungarian scientists. It is worth mentioning the article by S. A. Vinogradov et al., where authors thoroughly describe determinants of the labor market success of students graduated in Szent István University in Hungary. Case study analyses not only the classical economic indicators – such as income, chance of becoming employed and the average time till the first employment after graduation, but some other factors as well: the link between the current/last job and the qualification awarded, willingness to change job and other conditions that might determine labor market success for young professionals.

Another distinctive research in the journal is made by Zsuzsanna D. Németh with other scientists analyses the connection between sustainable development and energy consumption in Hungary and Lithuania.

Undoubtedly all researches in the Editorial could not be reviewed, so we encourage familiarizing with them in the journal.

We invite scientists to actively publish in the journal, share their research results and methodological insights. We expect for close cooperation.

Prof. Dr. (HP) Valentinas Navickas
Editor-in-Chief

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MOTIVATION AND INTERGRATION OF HUNGARIANS WORKING IN LONDON

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Annotation
Recently, the proportions of people who are immigrating to achieve their aspirations in abroad are increasing rapidly.
Hungarians who have gained adequate training and qualifications can start working in their motherland. Previously a certain job is said to fulfill the employees for a long time, at least for the retirement as well. Nowadays, this is absolutely not true. In one hand it is not only because of the workers having increased demand and desire for new things, and hoping in their jobs, but in the other hand in these current conditions, they cannot find a suitable workplace for themselves, which it might be in accordance with their qualifications, their experiences as well and they could exploit that sufficient remuneration to benefit. People are not able to cover the increased subsistence by their domestic wages and revenues. For that reason, there are many people in Hungary who think about their life, opportunities, and possibilities as well.
If they worked abroad, how they would start, having abdicated their lives so far, leaving their families, in the hope of a better paying job. In one of my research named after the international career field, I have studied the living life of Hungarians in London. What are their motivations, how they can solve the differences between foreign cultures. What integration competencies do they have?
Most of us know the "cultural shock". There are several components of this shock. You should have to know the details of this period, because all of them who want to go to work abroad, have to prepare in advance. There are other conditions, circumstances, habits, custom and some difficulties of other civilization as well.
A new country may be "windows to finding opportunities" becoming what we want to be, doing what we want to create and feeling at home in a foreign country as well. But if we do not prepare, do not speak foreign languages, the life might be a failure venue there.
KEY WORDS: Migration, motivations of working abroad, skills for integration, cultural differences, cultural shock, creating stability zones

Introduction

Formerly if we heard that expression: migration, we associated mainly the process of the immigration and did not focus the emigration. That process could hardly come to our mind. (Hárs 2008)
But nowadays these themes are so up to date and we have to discuss about it.
Working abroad is part of the labor market in modern economies, and is closely related to the process of globalization. In a globalized labor markets the labor migration is considered to be so natural. The expansion of the capacity of the European countries appreciated in the European Union. (Hárs 2010)
Nowadays the field of migration is often talked about in media. That's why we can say that this is a timely topic. According to the statistical data, there is a continuously increasing emigration in this field. Most of the workers take a job abroad rather than in their own country. Those ones who have been working abroad for a long or a short time of a period, some of them never want to come home, because of their having final volition and decision or at least it seems to be.

This feeling is dual, because you have to cope with the idea that their lives would never be the same again, and with a hopeful look forward to the future, to implement their knowledge into money. If it is not possible to achieve at home, then go abroad. (Hárs 2008)

Moving is a part of our life. When we have to make a decision, not only knowing and understanding new things, searching challenges, but our natural curiosity are become the driving force as well. (Hárs 2010)
The spatial accessibility is not a problem any longer, because of the improving travelling conditions. You can get to London, in just a few hours providing cheaper services and affordable prices by low-cost airlines. Leaving their own country is considered to be a growing tendency because of the improvement of the spatial conditions.

Working abroad

Decisions on moving abroad are preceded by planning, thinking about a lot. But in some cases there are individuals who make a sudden decision and start to visit the unknown area. Respondents participating in my survey said that they had already strong hope that they can expect more abroad, for example in London in this case. New atmosphere, the challenges, and the novelty can also act as a motivation for them. In many cases, the experiences of these employees showed - even if they had job at home - they felt their service is really not necessary. They did not get neither an adequate financial remuneration, nor a morally appreciation. They become hopeless because of these reasons. This is a longer process, because the large number of employees is quite patient for a while, waiting for a better offer, sending the

Curriculum Vitae (CV), going to interviews, hoping of a better paying job. And then, when series of failures come, they can get into a „vicious cycle", which could already frustrate them. If they were called to job interview, they may not be able to convince the employers because of being so hopeless. They are frustrated because there is a large amount of sending CVs on them without getting any answer by the companies, (the employers did not even respond in some cases). One has been experiencing so much failure and bad experiences and feelings by these situations, even if they have got a job. If there is no work, being without a permanent job, the situation is even more distressing, and the individual is becoming so hopeless and do not know what to do. The decision of working abroad is not so easy to take with respect at all. Leaving the own country after a recognition by step by step process. After that their lives would never be the same again any longer.

After all, the hope of a better quality of life has been the motivation to go away from the environment where they were born. They evaluate their current situation and future prospects, and eventually came to the conclusion that elsewhere they may implement their plans, earn enough money to live a living life. If we live in a challenging environment, we also do more to ensure such compliances. (Hárs 2008)

Professor Oded Stark (2003) in March in IIASA said in his lecture about "Rethinking the Brain Drain": *"If the production does not encourage employees to achieve higher level of activity, then they will invest less to their own development of intellectual skills. The real positive test of migration is that people can acquire experiences, skills and transform them to intellectual capital forge in wealthier countries and then they return to an underdeveloped (poor) economic environment to use that knowledge. In a well-organized economy the costs and interferences due to the migration, which may be problem, can be solved more easily than if such policy does not exist."* (Rédei, 2007)

Interesting data about immigration have been published by the British Government. According to these data the tenth most immigrants coming from Hungary to the United Kingdom, but most people are coming from Poland, India and Pakistan.

In 2014 in the U.K. six hundred thousand immigrants applied for social security number in order to be able to work and learn there. These data have been aggregated by the government and finally it showed that most people have come to the U.K. from Poland, circa 80 thousand persons, but more than 47 thousand from India and more than 38 thousand from Pakistan. (Daily Mail and Daily Sun)

About 33 thousand **Lithuanian**, 30 thousand Spanish, 24 thousand Italian, 23 thousand, Romanian, 22 thousand French and 19 thousand Latvian and Hungarians have arrived in the largest numbers. According to the data of the British Government, 18.110 persons asked for Social Security Number.

There are also the Portuguese, Irish, Chinese, Australians, Nigerians, Bulgarians, Germans, Slovaks, Czechs and Bangladeshis among the top 20 immigrant nation too.

According to the statistics, London still is the most popular city for immigrants in the U.K., but some nations prefer smaller cities. The Bulgarians like to settle in Herefordshire, the Poles like Northern Ireland, the Zimbabweans like Leicester, the Chinese, Afghans, Bangladeshis and Erithreians rather go to Birmingham. The Lithuanians go to the middle of England Peterborough, the Iraqis to the Northeast Hull, and the Slovaks to Warrington to a small city nearby Liverpool and Manchester. The Polish prefer to settle in west London in Ealing districts, the Australians in Hammersmith and Fulham districts, and the New Zealanders in south-west London in Wandsworth. The statistics shows the Hungarians preferences too, many of them settle down in North London in Haringey and in Brent district, like Romanians and Portuguese as well.

My research was mainly carried out in Brent district and nearby areas of Wembley Stadium.

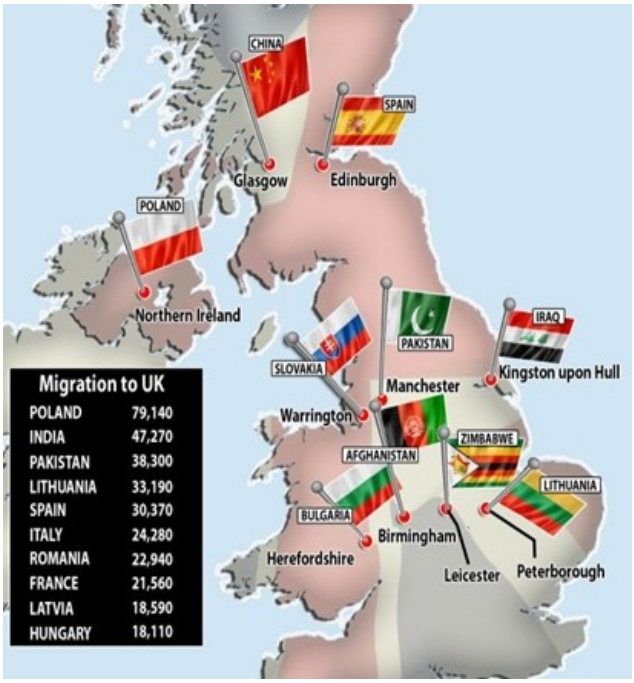

Fig.1. Migration to U.K.
(Source:http://hvg.hu/vilag/20130403_Brit_adatok_Magyarorszagrol_erkezik_a_tiz)

The city of London is one of the most popular destinations

What are the major reasons for job seekers decide to work in London? Who are they? Why do they undertake the integration difficulties to a foreign culture? Have they been caught up by the cultural shock as well? We can find answers by the interviews of Hungarian job seekers in London, after making analysis and data sources of them.

The interviews have been made by me in person during my survey for September 2013 – till April 2015. I examined those types of employees, who represent variety of occupations. There were 31 participants in my survey. My method was structured interviews and content

analysis. The novelty of the research method the spot interviews having produced in London and the follow-up system, for example what they do, what happened to them after some months later. I followed them up 4 months and then 3 months later.

Motivation

The reasons and motivations of Hungarians working in London have been changed for the past years. While formerly the focus was on the new desire for the adventure of the unknown field or language learning in native environment, these motivations were considered to be the main driving forces, but nowadays this trend has been taken a new direction.

Nowadays people go abroad for example to London in hope of better wages and better living circumstances. The causes of emigration are said by the interviewees participating in my survey, to be primarily the economic crisis, the uncertainty situation, the difficulties in living conditions, economic constraints, the impossibility due to foreign currency loans and hopeless situation, and their debt burden.

We can see that receiving extra income is quite inviting thing that is why people can change their location as well and they are willing to change. However, the international labor migration is not only for searching for better wages and jobs, but also can offer new opportunities, economic advance for the their families of the employees as well. And beside these the unknown environment, may get a new home as well. (Poór-Karoliny 2013)

Nowadays, the motivations for working in London are as follow:

1. Better payment
2. Better living standards
3. Better working conditions
4. Learning a new language
5. Gaining new experiences
6. Knowing the foreign culture
7. Friendships (to make friend- and relationships)

Integration

However, the new environment can create new problems for them as well, such as integration, language difficulties, and cultural differences (cultural shock). Sometimes they realize that their plans have been failed. I have examined the sample, Hungarians working in London; and I interviewed them what things did help them to integrate, how could they cope with the cultural differences. The integration to the new environment has especially been helped by the interpersonal relationships and competencies, language skills and cultural curiosity.

Those Hungarians working in London can easily integrate who have previously studied English language, knowing the foreign culture, the customs, and have more knowledge about the U.K.

The interviewees said that searching for the company of the locals, the open-mindedness, the receptiveness, the cultural empathy, flexibility, tolerating uncertainty, patience, respect, creating zones of stability, had helped them as well. After the arrival to another culture, the "cultural shock" cannot be eliminated, all expatriate workers can catch up, the Hungarians living and working in London as well.

6 sections of the Cultural shock:

1. *The beginning of the relationship:* this is a new situation, the period of the comparison; everything is new and full of expectations. It's almost a euphoric condition.
2. *The real culture shock:* the cultural differences are more and more emerging and feeling of uncertainty is increased by. "What am I doing here? Are you sure you want this? Do I want it for me? "Everything is so doubtful.
3. *The superficial adaptation:* the emigrants want to survive, and the feeling of being lost is increasing. "I have to integrate!"
4. *The period of depression and isolation:* people struggling and they have lack of self-confidence.
5. *Learning and integration:* they can understand and learn the differences between cultures and they begin to integrate.
6. *Autonomy and independence:* they have enough self-confidence, understand the local people and connect and meet them who represent his/her own culture. (Csath 2008)

Those employees who have been living and working there for a long time, they've passed the sections of the Cultural shock as well. (Szekeres 2007)

But those people who were only recently staying in the U.K., they must integrate, even if they have already lived abroad elsewhere else. The environment in London should be known well, and the habits you need to be understand and be able to accept.

Six respondents of 30 persons sample

1. Interviewee: Originally he is an Electrical Engineer, and now he works as an operator in London: *"The motivation of my migration is better wages. You can easily integrate as an engineer, if you speak the language well. "*
(After 5 years working in London, he came home; and he wants to stay in Hungary).

2. Interviewee: He was working as a manager in a business department in Hungary, now he is a waiter in London: *"They are right who leave their own home. Because, without an effective form of support or long-term debt you have no chance as young people to „stand on their own feet"at all. If you are an information technology engineer, or/and a programmer, you could earn enough money and be successful in your career. "*
(His plan is to stay and work abroad forever).

3-4. Interviewees: Two ladies were working as office assistants in Hungary and they are pickers in a warehouse in London: *"We have been living in U.K. nearly for one and a half year, and we often had sleepless nights because of the sense of how to proceed. What I cannot really get used that we'll always be considered as*

immigrants." (One of them had already come home to Hungary).
5. Interviewee: In Hungary he was working as a unit manager for an insurance company. Now he is a waiter in London: *"I have been living here for three years, but I have no homesickness at all. I missed my family a little bit at first. I am satisfied because I know that I can support them, which help me to solve the problems and do my tasks ahead."*
(He does not want to come home to Hungary. And his family moved there too in 2015).
6. Interviewee: Medical doctor in Hungary and in London too: *"The most important arguments included that the payment is infinitely better abroad. In many cases it means millions! It is also true that the cost of living is higher here. But I have to tell you that for us, it is also so inspired that we can work in the best conditions in hospitals. The circumstances of healthcare are much better in the U.K and in Western Europe than in Hungary! That is the truth. "*
(He is going to stay in London as well).

Results and conclusions

Before the travelling, we have already to know about the integration competency elements and the deeper stages of the culture shock. Expand your knowledge; language learning and careful preparation are also necessary. We should study the culture and habits. Do not go abroad without adequate financial resources and knowledge! Please check and think about what to do. How will you find a job? Where can you inquire about the local conditions of employment?

Let you put aside your prejudices, give you a chance! The human relations should be nurtured (personal contacts, social networking sites, groups) as well. All the information is useful and share with each other to help them to integrate. (Hofstede-Pedersen 2002)

If you get a job, even before the conclusion of the contract, you should check the company via the Internet. We have to ask for a written employment contract. Working without permission is prohibited. Document have been written in a language that is not our native, or you are not so fluent you can ask for a help of an interpreter assistance or a friend who speaks and understand in English well. If you do not understand the meaning of the construction you do not underline it.

In workplace, for example the self-help groups can help one another, mainly the new entrants. Do not pay attention to whether fully accept you or not. Be innovative, feel enough strength to change your lives, and be adventurous. Everything has its sunny side. Explore the area and its beauty, and enjoy your life.

All migration researchers argue that migration is as old as mankind. This is true, but nowadays we must consider being some safety implications with it. The conflict is inherent in the migration, movement, and also in availability of space. Migration involves security challenges not only for the host society but for the immigrants as well. There are advantages and disadvantages, as usual.

Table 1. Shows the most important factors. The host countries will benefit, because the migrants do such kind of works, which jobs has not already been undertaken by members of the host society.
The structural unemployment problem is known in developed societies. There are many people who are unemployed, because they do not have adequate qualification for that job or there are only such opportunities and specific job offers for them, which they are not willing to undertake. (Szabó 2006)

It is important to mention that this paper do not analyze this brand new migration from Syria and other Arabic countries coming to the E.U. nowadays. This "flow" is often called "migration", but these kind of moving are not my topics in this publication

Table 1. Advantages and disadvantages of the migration

Host Security		**Security of the immigrants (settlers)**	
Advantage:	*Disadvantage:*	*Advantage:*	*Disadvantage:*
• Low prestige performing works • Demographic rejuvenation • Varied society • Diversity of the services, multiculturalism • Resettlement in certain countries	• Increasing crime (illegal work, smuggling of people) • Foreign habits, less identity caused by different cultures • Increasing social differences, decreasing sense of security • Competition on the labor market amongst the poor	• Better living standards • Job • Social safety net	• Threats via extremist groups • Discrimination • Residential segregation
Defensive assets		***Defensive assets***	
• Limited affiliation (quota, education, Brain drain) • Border surveillance		• Ethnical and religious solidarity, unity	

(Source: Primary research by the author via Szabó A. Ferenc: A Nemzetközi migráció és korunk biztonságpolitikai kihívásai, The International migration and security policy challenges now, 2006:11)

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MOTIVATION AND INTERGRATION OF HUNGARIANS WORKING IN LONDON

S u m m a r y

The enlargement of the EU has had a great influence on the development of employment, on the labor flows, and therefore the willingness to work increases in the EU member countries as well. (Poór 2013)

We can see different work intensities amongst working in the EU member states, but overall, a growing proportion appears. In this process, due to the economic crisis a little slowing down was seen, but it is only temporary. There are countries where the direction of migration flows has been increased. Because of their proximity to Hungary, Austria and Germany are the two most common countries of destination, where the practice of emigration, has essentially unchanged. Employees also direct towards new countries where they can find large variations of jobs. According to the statistic we can say that the structure of employment is different in some countries. In Austria and in Germany, typically skilled workers are working, while the U.K. labor market attracts more educated labor. It is clear that in these countries, especially in the United Kingdom, there is a major presence of the over-qualified foreign workers.

However, it is important to mention that some flow start, to the direction of the parent countries. In the future the labor migration will play a significant role in the political, social and economic decisions as well. It does not matter at all whether this trend shows how the employees go to work abroad. What will be the consequences in the future? What solutions would be needed in order to keep the "knowledge" in Hungary and invite employees leaving abroad? It is not always so easy to find a job after working abroad and coming home to Hungary. The accumulated financial resources allow the individuals to find a new job in their home country, waiting for the best job offer. They may try to get a job as a registered unemployed in the hope of finding the right job or go abroad again.

Imola Józsa. PhD Candidate in Doctoral School of Management and Business Administration in Szent István University (Hungary). Her scientific research is about the migration, working abroad, motivation, cultural differences, and integration as well. She also examines the HR-fields, foreign enterprises settled in Hungary, headquarters and subsidiaries.
She has been awarded three degrees: the first one is in Information Technology (IT) Engineer (BSc) and she has got specialization in Technical Management, as part of this Engineer program.
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EXPLORING THE LINKS BETWEEN FAIR VALUE ACCOUNTING AND FINANCIAL CRISIS

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Annotation
The conventional accounting system favours the usage of amounts at which the elements of financial statements were measured at the date of their initial recognition. Historical costs possess some advantages; objectivity and conclusive evidence are in the first place. They can serve as a prudence measure for the protection of entity's creditors. Unfortunately, historical costs are not suitable and relevant for economic decision-making and they deteriorate the stewardship function of accounting from the view of entity's owners. As a reaction to those disadvantages standard setters prefer measurement attributes based on current market information and assumptions for preparing the financial statements by publicly responsible entities. Fair value is considered the most useful market characteristics as far as measurement in financial reporting concerns. The purpose of this paper is to show the weaknesses and disadvantages of using fair value measurement in accounting and to explore the links between fair value accounting and financial crisis in 2008-2009.
KEY WORDS: fair value accounting, financial crisis, measurement, valuation, accounting income, economic income

Introduction

The first definition of fair value was introduced in 1982 in a contemporary issue of IAS 20 published by the IFRS. This definition has not changed much within years and is almost identical to the most recent version, according to which Fair value is ´the amount for which an asset could be exchanged between knowledgeable, willing parties in an *arm's length transaction´*.

The individual features of this definition are further explained in the IAS 40 that has been consistently amended to clarify the applicability of this method of accounting to its potential users. *´Knowledgeable´ parties* are defined as ´reasonably informed´ about all aspects of the asset to be transferred, including its utility, form and features and the market environment and the assets value in the market environment at the time.

A *´willing´ buyer* is defined as someone who wants to buy but is not in any way compelled to do so. Although a buyer is motivated, he is not prepared to overpay in a transaction. Also, he is not determined to pay below the asset's value in the market. A willing buyer pays as much as the market value of the asset is at the time.

Similarly, *a ´willing´ seller* is not forced to sell below the asset's market value but also is not trying to get an unreasonably high price for it. A willing seller wants to sell at a best reasonable price in the market conditions of the time.

The *´arms-length´ transaction* refers to a transfer of an asset between a buyer and a seller who have no special relationship and therefore the terms of the transfer would not be affected by special mutual arrangements, such as family bonds. Both parties have to act independently and thus prevent a creation of conditions for transfer that would be atypical for market environment.

To ensure that the financial statement utilizing the fair value method of accounting indicates the most exact financial situation of a company, the IFRS specifically states that fair value excludes in its estimates costs incurred by a sale of any given asset (realizing a transaction). It also lists other ways that the estimate could be deviated from an asset's market price to be excluded, such as atypical financing methods, concessions or leaseback arrangements.

Fair value is time-specific. Financial statements of entities that utilized the fair value method are most indicative of the entities´ financial situation at the time that this statement is finalized. Therefore, even if the entity does not make any new transfers of assets or changes to its accounts, a different market environment would deem its financial situation different.

The closest indicator of a fair value estimate is a current market price for a similar asset, in a similar location, in similar condition and under similar lease arrangement or other contract. In case this information is not available, the entity should derive the estimated price from other sources, such as the current price of different assets and factor in the differences later to get a more reliable estimate.

According to Škoda and Hrazdilová (2014) the *fair value* differs from a *value in use* because it does not include any specific information about an asset; it only considers general information that would be known to any ´knowledgeable and willing´ parties. The fair value estimate therefore does not take into account any specifics regarding the asset such as for example ´additional value derived from a creation of a portfolio of properties in different locations´ (IAS 40).

So far, the IASB has indicated the option of applying the fair value method in the financial statements in the following accounting standards:

- IAS 16 provides a fair value option for property, plant and equipment;

- IAS 36 requires asset impairments (and impairment reversals) to fair value;
- IAS 38 requires intangible asset impairments to fair value;
- IAS 38 provides for intangibles to be re-valued to market price, if available;
- IAS 39 requires fair value for financial instruments other than loans and receivables that are not held for trading, securities held to maturity; and qualifying hedges (which must be near-perfect to qualify);
- IAS 40 provides a fair value option for investment property;
- IFRS 2 requires share-based payments (stock, options, etc.) to be accounted at fair value; and
- IFRS 3 provides for minority interest to be recorded at fair value.

It is very likely that the IASB shall continue to increase the applicability of the fair value in future but is mostly applied to account for the firm's assets (IAS 16) and the investment property (IAS 40).

As the literature overview shows, there is a huge amount of literature relating to both general measurement issues and the impact of fair value on economy during the recent crunch, too. Some authors have scrutinised the influence of fair value measurement on the companies using empirical data from their financial statement to evaluate the extent of fair value accounting and their possible effect on deepening the financial and economic crisis. Other authors have searched for arguments based on accounting theory, which can help depict strengths and weaknesses of fair value accounting in general and in unstable times specifically. Both approaches are of a great value and provide us with important insight into the nature and causes of the slump and the role of fair value accounting. The contribution in the field of theory is therefore very sensitive comparison of different approaches to fair value.

Main aim of this paper is to examine and depict the advantages and disadvantages connected to the fair value, providing the reader with objective information and thorough insight into the problems and benefits of fair value. Partial objectives of this paper are to define the concept of fair value, to provide information about theoretical background and evolution of fair value and to examine and describe the possible future development of fair value.

New concept of fair value

Recently, the European Commission has endorsed IFRS 13, Fair Value Measurement, which sets out a single framework for measuring fair value and provides comprehensive guidance on how to measure it. IFRS 13 is the result of a joint project conducted by the IASB together with FASB, which led to the same definition of fair value as well as an alignment of measurement and disclosure requirements to FAS 157. Both FAS 157 and IFRS 13 define fair value as the price that would be received to sell an asset in an orderly transaction between market participants at the measurement date. This definition of fair value reflects an exit price option, which is the market price from the perspective of a market participant who holds the asset. Moreover, fair value must be a market-based, not an entity-specific measurement, and the firm's intention to hold an asset is completely irrelevant. For instance, the application of a blockage factor to a large position of identical financial assets is prohibited given that a decision to sell at a less advantageous price because an entire holding, rather than each instrument individually, is sold represents a factor which is specific to the firm. If observable market transactions or market information are not directly observable, the objective of fair value measurement still remains the same, that is to estimate an exit price for the asset, and the firm shall use valuation techniques. Valuation techniques shall be consistent with the market approach, income approach or cost approach. The market approach uses prices and other relevant information generated by market transactions involving identical or comparable assets. The income approach uses valuation techniques to convert future amounts (e.g. cash flows or income and expenses) to a single present amount. Such valuation techniques include present value techniques, option pricing models - such as the Black-Scholes-Merton formula and the binomial model– and the multi-period excess earnings method. The cost approach, instead, reflects the current replacement cost, that is the amount that would currently be required to replace the service capacity of an asset. Inputs to valuation techniques are categorized into a fair value hierarchy which gives the highest priority to quoted prices (unadjusted) in active markets for identical assets (Level 1 inputs) and the lowest priority to unobservable inputs (Level 3 inputs). Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets that the firm can access at the measurement date. With Level 1 puts information asymmetry between management and investors is very low. Hence, quoted prices in active markets must be used whenever available. Level 2 inputs are inputs, other than quoted prices, that are observable - either directly or indirectly - for the asset. Level 2 inputs include quoted prices for similar assets in active markets; quoted prices for identical or similar assets in markets that are not active; inputs other than quoted prices that are observable for the asset, such as interest rates and yield curves observable at commonly quoted intervals, volatilities, prepayment speeds, loss severities, credit risks, default rates; inputs that are derived principally from or corroborated by observable market data by correlation or other means. Level 2 inputs are expected to have great reliability as they are corroborated by observable market data. Adjustments to Level 2 inputs that are significant to the entire measurement result in a fair value measurement categorized within Level 3. Level 3 inputs are unobservable inputs for an asset fair value measurement. Unobservable inputs are inputs for which market data are not available and, therefore, need to be developed on the basis of the best information available about the assumptions that market participants would use when pricing the asset. Level 3 inputs are subject to the highest degree of information asymmetry between preparers and users. As mentioned, fair value must be an exit value, that is, a market price from the perspective of market participants at the measurement date.

The accounting system which uses market selling prices to measure a firm's financial position and financial performance is called exit price accounting. Exit price accounting is associated mainly with the works of Robert Sterling (1970), and Kenneth Mac Neal (1970). Chambers bases his proposal for exit price accounting on a notion of adaptive behaviour of a firm. In fact, he sees the firm as an adaptive entity engaged in buying and selling goods and services. The firm is governed by the decisions of its managers who represent the owners' objectives and the owners consider the firm to be an instrument by which they hope to increase their real financial wealth. The concept of adaptive behaviour sees the firm as always being ready to dispose of an asset if this action is in its best interest. For instance, the firm keeps a non-current asset only if the present value of the future net cash flow from the use of the asset is greater than the present value of the expected net cash flow from an alternative investment of the exit value of the asset. At all times, therefore, the firm must consider whether an alternative opportunity for greater returns exists for its assets if they were sold and the proceeds invested. This is an opportunity cost concept, which uses the exit price as a measurement base. Škoda and Hrazdilová (2014) point out that adaptive behaviour therefore calls for knowledge of the cash and current cash equivalents of the firm's net assets. The selling price reveals the firm's ability to go into the market for the purpose of adapting itself to present conditions. Chambers also considers the question of being additive to be a key factor in support of exit price accounting. The main products of accounting are the balance sheet and income statement. If different measurement scales are used for the different items, they cannot logically be added together, and no practical or commercial meaning can be deduced from the aggregate. According to Chambers, the use of either historical cost for some assets, of replacement cost for others, or present value for other ones or cash do not lead to a meaningful balance sheet. Nor can a jumble of historical costs based on different dates lead to a meaningful calculation of net assets.

Mac Neal (1970) claims that the historical cost accounting is based on conditions which have largely ceased to exist. Towards the end of the nineteenth century firms grew larger and many became companies with a multitude of shareholders and hired managers. In the twentieth century, firms were generally owned by numerous shareholders who relied on financial statements and the media for their information about the company they owned. As a result, accounting has become more and more important for shareholders. Mac Neal contends that conventional accounting principles based on historical cost provides potentially false and misleading financial statements that do not serve decision-oriented shareholders. Shareholders cannot learn the current values of the company assets from a balance sheet based on historical cost accounting and they are also at a disadvantage compared with insiders who have this information. The ideal solution is therefore to report all profits and losses and values as determined in competitive markets. Sterling (1970) uses a simple model – a wheat trader in a perfect market with a stable price level – to show that exit price is better than all others accounting measurements. For the wheat trader, three decision problems are: the decision to enter and stay in the market, the decision to hold either cash or wheat and the evaluation of past decisions. The information relevant to the above decisions are the expected future price of wheat, the expected future price of alternatives, the present selling price of wheat, the present buying price of alternatives, the price at the last evaluation, the quantity of wheat and money at the last evaluation and the present quantities. The present selling price of wheat is the only item of information that is relevant to all decisions. The others are relevant to one or more, but not all, decisions. Even when the assumption of perfect competition and stable prices is relaxed, Sterling contends that the exit price is still superior.

In an effort to harmonize accounting practices, the European Union has started adopting directives as early as 1970s. In 2000 the EU made a crucial step to that end by proposing to adopt accounting standards called the International Financial Reporting Standards (IFRS) as developed by a private organization based in London UK called the International Accounting Standards Board (IASB).

The European Parliament adopted these new accounting standards in 2002 in a new legislative that came into effect 3 years later and thus led some European companies to introduce themselves to a new accounting principle known as ´fair value´. The logic of this change is rooted in the deficiencies the Europeans perceived in their contemporary accounting system known as ´historical cost´. Using this method, their financial statements indicated a depreciated value of their past acquisitions. This value was seen by critics as misleading, not indicative of a real wealth of a firm. The aim and the promise of a fair value accounting are thus seen in its ability to project this wealth reliably.

The fair value accounting has not become the main method of accounting in Europe and it is questionable whether it ever will. In the IFRS standards, fair value and historical cost remain methods of choice for firms and financial institutions. The IASB continues to develop the concept of fair value accounting, trying to limit the vagueness of this approach and clarify its utility and applicability. Nevertheless, fair value continues to have many critics. The reasons why this is the case will be elaborated in the next section of this paper that deals with disadvantages.

Usefulness of fair value – its advantages and disadvantages

It is a normative truth in the world of accounting that for a financial statement or any accounting data to be useful, the two most important characteristics have to be *relevance* and *reliability*. Taking these two features as a starting point, the following section will explore in the detail how well fair value accounting stands *vis-à-vis* these challenges.

The pros and cons will be evaluated not only from the point of a firm - an internal view but also from an external view, from a viewpoint of a potential investor or a financial institution.

Timely/relevant information

Since fair value accounting utilizes information specific for the time and current market conditions, it attempts to provide the most relevant estimates possible. It has a great informative value for a firm itself and encourages prompt corrective actions.

More information in the financial statements than historical cost

Fair value accounting enhances the informative power of a financial statement as opposed to the other accounting method - the historical cost. Fair value accounting requires a firm to disclose extensive information about the methodology used, the assumption made, risk exposure, related sensitivities and other issues that result in a thorough financial statement. Inclusion of more information is possible whenever there are

- observable market prices that managers cannot materially influence due to less than perfect market liquidity; or
- independently observable, accurate estimates of liquid market prices.

Thusly produced financial statements therefore increase transparency of a firm, which is particularly useful to potential investors, contractors and lenders as they have a better perception of the stability of a given firm and insight into its wealth.

Reliable Information

For a financial data to be reliable they ought to be verifiable and neutral. Since fair value is inferred from the market price of a given asset, this value can be checked in hindsight from available information about current and past market prices. Since it is necessary to include the methodology and disclose the information about possible deviations from a quoted price in the financial statement, this information can also be verified. Neutrality is meant to represent a value that is best explained as an objective value and therefore devoid of any factors that would cause a rise or fall in such a value, atypical of general market conditions. For example this is a value that does not include specific information related only to the owner of a given asset. An owner of a firm is likely to seek complementary properties or assets so that a value of a single asset/property is that much higher for the firm as it not only represents its own individual value but also an additional value, as a part of a distinct and functional whole. A neutral value does not consider this asset-specific information and only makes an estimate of its value based on general publicly-known information and thus makes this estimate reliable.

Pricing deviation

One of the most often quoted disadvantages of fair value accounting is the vagueness of the measurement procedure of assets for financial statements which creates loopholes for pricing deviations. There are several ways that this measurement could produce differing prices and thus result in a deviation from a desired fair value.

Misleading Information

It is possible that sometimes the observed value of an asset in the market is not indicative of the asset's fundamental value. Market might be inefficient and not reflect in its estimates all publicly available information. There are also other factors that could cause that this market estimate to be deviated such as investor irrationality, behavioural bias or problems with arbitrage among others.

Ball (2004) also points out that market liquidity is a potentially important issue because spreads can be large enough to cause substantial uncertainty about fair value and hence introduce large overall value deviations (´noise´) in the financial statements.

Manipulation

Frankovský et. al. (2012) points out that manipulation of the price by the firms themselves also presents a risk in obtaining a fair value estimates because in illiquid markets, trading by firms can have an effect on both traded and quoted prices.

Absence of a market price

If a market price for a given asset is not available in the active market, fair value estimate that is supposed to provide the most reliable information is more difficult to obtain. In this case, the usual procedure is to use "mark to model" accounting. This requires creation of a more extended estimate which runs the risk of creating a deviation of price for a given asset from its price if it was to be found in the market.

Furthermore if this ´mark to model´ method is used to simulate a market price for a given asset, it provides an opportunity for the firm to manipulate this estimate, as it is the managers of the firm that can decide on what kind of a model or a parameter would be used.

Limited reliability

It is arguable that the information available in the financial statements provided by the fair value accounting method is relevant and reliable only for a limited period. As the information included in the statements is time-specific for given market conditions, a change in the market environment could cause a major difference in the actual financial situation of a firm. For an inexperienced professional in the accounting realm, a changing market situation would thus cause confusion as to what is the actual wealth of a firm. To get reliable information this individual would have to request a new financial statement. This could become a costly business if this request is made often. On the other hand, it is likely that an experienced businessman is able to infer the changing value of a business without the need to request a new financial statement, given he understands the procedures involved in utilizing fair value method.

Volatility

The problem of volatility is closely related to the previous issue of limited reliability. If the fair value of an asset follows the development of a market environment, this means that the value of an asset changes with the market. If the market with regards to the nature of a given asset booms, the price of a given asset goes up; if it busts, the price goes down too. A volatility of the market, which is an existing possibility, therefore creates a superfluous risk and could adversely affect the investment capacity of

a firm. According to the research conducted by the European Central Bank's experts ´for assets and liabilities held to maturity, the volatility reflected in the financial statements is artificial and can be ultimately misleading, as any deviations from cost will be gradually compensated for during the life of the financial instrument, "pulling the value to par" at maturity´.

Contribution to the procyclicality of the Financial System

Following the recent financial crisis, there has been a debate about the potential contribution of fair value accounting. Many believe that it exacerbated the effects of the crisis, through increasing the inherent procyclicality of the financial system. (Procyclicality refers to the ability to exaggerate financial or economic fluctuations.) Fair value accounting and its dependency on the development of the market situation could cause that a market that experiences a slump is closely followed by a deterioration of a firm's financial situation that in turn causes the market to panic, bringing it closer to an outbreak of a crisis. Since financial institutions are closely related to firms and the business cycle in general, if fair values indicate a fall, losses will also be reflected on the banks´ capital. This kind of weakening of bank balance sheets has been a disconcerting event for a future development of some markets, and the state of the whole financial system. In practical terms, this potential of fair value accounting to contribute to the procyclicality of the financial system would cause that increases in bank profits would be exaggerated during upturns in the market and would encourage an ´overextension of credit´, that would then ´create the conditions for a deeper and more long-lasting downturn. This would then also be exacerbated by the effect that downward adjustments in asset valuations would have on bank profits and capital, which would further restrain their lending. Moreover, another potential result would be to limit credit availability to counterparties whose credit status is more volatile, e.g. small and medium-sized enterprises (SME). Given the importance of SMEs in Europe this may have a detrimental effect on future economic developments.

Fair value in financial statements

When assessing the quality of fair value information, a natural question to ask is whether this information is useful to investors. In fact, the main objective of financial reporting is to provide information that is useful to investors, creditors and others in making investment, credit and similar resource allocation decisions. Although financial reporting users include a large numbers of subjects, both the FASB and IASB focus on the needs of participants in capital markets. This is because investors are considered the ones who are most in need of information from financial reports as they cannot usually request information directly from the firm. Moreover, as they provide risk capital to firms, the provisions of financial statements that meet their needs also meet most of the needs of other users. As a result, investors' needs are considered as highly representative of the needs of a wide range of users. For this reason, empirical research has long been focusing on the relation between fair value accounting and share prices or returns. Equity values reflect an accounting amount only if the information is relevant to investors in valuing a firm and is measured reliably enough to be reflected in share prices (Barth et al., 2001). Most of the research on fair value accounting has focused on the US as fair value accounting has long been used there. Furthermore, empirical studies have mainly focused on banks, which are largely comprised of financial assets and liabilities measured at fair value. Although this literature provides useful insight into the contribution of fair value to financial reporting quality, it must however be taken with some caution. In fact, many studies are prior to FAS 157 and IFRS 13, when fair value was not clearly defined as exit value, nor was the procedure for absence of active markets clearly laid-out.

4.1. Fair value relevance for financial instruments. As mentioned, much of the research on fair value accounting has focused on the bank sector providing mixed results. Barth (1994), for instance, examines a sample of US banks with data from 1971-1990 and finds that investment securities' fair values are incrementally associated with bank share prices after controlling for their book values. However, when examined in an annual return context, results provide instead mixed evidence. One leading candidate for ambiguous finding is that the securities' gains and losses estimates contain too much measurement error relative to the true underlying changes in their market values. Using essentially the same database, Barth et al. (1995) confirms the Barth (1994) findings and lends support to the measurement error explanation. In fact, fair value-based measures of net income are found to be more volatile than historical - based measures, but incremental volatility is not reflected in bank share prices. Petroni and Wahlen (1995) find that fair values of equities and Treasury securities are value-relevant, whereas fair values of municipal and corporate bonds are not, thus suggesting that fair values of securities actively traded in the market are considered as more reliable. Nelson (1996) documents that fair value of bank loans; deposits and long-term debt are not value-relevant.

In contrast, Barth et al. (1996) find that fair values of loans are value-relevant, whereas Laux (2009) find the value relevance of loans only in limited settings. Finally, Venkatachalan (1996) examines the value relevance of derivative fair values and finds that such fair values are positively associated with equity market value. Empirical research therefore shows that fair value relevance varies according to the source of information. This issue has been further investigated after the FAS 157 issuance as valuation inputs have been categorized into a three level fair value hierarchy. Estimating fair value for assets and liabilities is in fact relatively easy if they are actively traded in liquid markets, whereas it becomes more complicated if active markets do not exist. When there is not a directly observable exit price, valuation techniques must be used to measure fair value. Valuation techniques use Level 2 or Level 3 inputs of the IFRS 13 and FAS 157 fair value hierarchy. Using a sample of large financial institutions, Kolev (2009) documents a significant positive association between stock prices and fair values of net assets measured using all the inputs of the fair value hierarchy. However, the coefficients on

mark-to-model estimates are consistently lower than those on the mark-to-market fair values (Level 1), even though the difference is significant only for Level 3 net assets. This study suggests that investors are aware of estimation errors and, therefore, value the three levels of the fair value hierarchy differently. Goh et al. (2009) also observe significant variation in the pricing of different levels of fair value assets, with the pricing being less for mark-to-model assets, i.e. assets with lower liquidity and greater information risk, than for mark-to-market assets. They also find that the pricing of mark-to-model assets declined over the course of 2008, consistent with increasing market concerns about illiquidity and information risk associated with these assets. Using a sample of quarterly report by banking firms, Song et al.(2010) find evidence that fair value measurements of Level 1, Level 2, and Level 3 inputs are all value-relevant, consistent with prior research. However, Level 3 assets are valued less than Level 1 and Level 2 assets. In addition, coefficients on Level 3 fair values are less than 1, which suggests that investors perceive reliability concerns for Level 3 assets. As for Kolev, the lower valuation of Level 3 assets is consistent with investors decreasing the weight they place on less reliable fair value measurements. Some studies have focused directly on the predictive capability of mark-to-model valuation techniques. Kim and Ritter (1999), for instance, examine the predictive ability of market multiples based on historical numbers and find that they do a relatively poor job without further adjustments for differences in growth and profitability. Price-earnings multiples using forecasted earnings result instead in much more accurate valuation. Ronen (2008) finds that transaction and market multiples tend to estimate exit values. Transaction multiples are in fact cases of 'revealed preferences', i.e. they refer only to successful transactions and incorporate synergy expectations as well as other positive factors which increase transaction prices, while market multiples tend to elide the idiosyncratic component of risk. Finally, Fiechter and Novotny-Farkas (2011) provide evidence that value relevance of fair value estimates also varies cross section ally and across time. Using an international sample of banks from IFRS adopting countries, they demonstrate that fair values are generally value relevant, although valuation coefficients vary with institutional and firm-specific factors. In fact, optionally fair valued assets appear to experience a discount in countries with low regulatory quality. Furthermore, they show that significant exposures to subprime investments result in substantially lower value relevance for financial assets at fair value. They also find that the value relevance of fair value assets has decreased as the financial crisis worsened. Much of the empirical research on non-financial assets has also focused on the United States as well as on Australia and the United Kingdom as these countries have long permitted upward asset revaluation for such assets. Most studies, including Easton et al. (1993), Barth and Clinch (1996), Barth and Clinch (1998) and Muller and Riedl (2002), examine revaluations of tangible fixed assets, which fall into Level 3 category of the fair value hierarchy and are therefore subject to a greater amount of management discretion.

Using a sample of Australian firms with data from 1984-1990, Easton et al. (1993) estimate annual return regressions and find that asset revaluations of tangible long-lived assets have incremental explanatory power relative to earnings and changes in earnings. Barth and Clinch (1998) also use a sample of Australian firms but from a later period, 1991-1995, and estimate annual stock price regressions to determine if financial, tangible, and intangible asset revaluations have incremental explanatory power relative to operating earnings and equity book value less the book value of re-valued assets. Barth and Clinch (1998) find re-valued investments are incrementally priced. Contrary to the view that intangible asset revaluations are likely to be noisy and uninformative, their study finds a positive association between such revaluations and share prices. With the exception of mining firms, they instead fail to find a significantly positive association between and equipment revaluations. By focusing on investment property firms, Muller and Riedl (2002) find evidence that the market finds asset revaluations estimates made by external appraisers more informative than those made by internal appraisers, thus suggesting external appraisals to be more reliable. This result is in line with Cotter and Richardson (2002), who also found that external appraisals are more reliable than those made by directors for a sample of Australian firms from the 1981-1994 period. Finally, Aboody et al. (1999) examine the performance prediction and pricing implications of fixed asset revaluations for a sample of UK firms from the 1983-1995 period. Findings show that upward revaluations are significantly positively related to changes in future performance, measured by operating income and cash from operations. Current year revaluations are also significantly positively related to annual stock returns, and current year asset revaluation balances are significantly positively related to annual stock prices. However, the study also finds that relations between revaluations and future performance and prices are weaker for higher debt-to-equity ratio firms, thus suggesting that managerial manipulation affects the usefulness of asset revaluations made by managers of firms facing the pressure of financial distress.

Fair value and reporting system in accounting

Overall, empirical findings raise some doubts on fair value estimates' usefulness to investors. For this reason, opponents to fair value often call for a return to historical cost accounting. Fair value has the great advantage that it provides a measure of what a certain investment is supposed to bring. On the other side, historical cost is useful to investors for two main reasons: it is based on actual, not merely possible transactions, and it provides investors with a measure of the resources which have been sacrificed to obtain that investment. Actually, the debate about accounting measurement has always been framed in terms of making a choice between fair value and historical cost accounting, with the former serving a decision usefulness objective and the latter a stewardship one. Over time, standard setters have become more and more oriented towards the decision usefulness of financial information, thus abandoning the historical cost accounting in favour of fair value accounting. This paper

claims that such a debate should be reframed and no longer considered in terms of the choice between fair value and historical cost. In fact, choosing between historical cost or fair value accounting implies sacrificing one these two objectives. A dual measurement and reporting system could be the solution to such a controversy. Historical cost and fair value provide two different kinds of information, which are both useful to investors. At the time of acquisition, fair value and historical cost are in most cases equal, but they do normally diverge in subsequent periods. Following acquisition, historical cost accounting and fair value accounting provide different information and serve different purposes. Fair value is needed for ranking and sorting out competing investment alternatives.

Reporting how much the entity invested to acquire an asset is not, by itself, fully informative as it does not offer any insights about the quality of that investment. In order to assess that quality, users need to know what that investment is expected to bring in the future. With some cautions on fair value estimates' reliability, fair value accounting provides investors with useful information about expected benefits from a certain investment.

However, fair value alone cannot help investors to properly evaluate stewardship, that is, the careful and responsible management of funds. In fact, financial statement users would not know how much resources the management has paid to obtain that fair value. Historical cost is therefore useful for stewardship and control decisions as it tracks the amount paid for resources. A given resources owned by two different entities will have the same fair value at any given time, but fair value does not inform investors that one entity have probably paid a different price for the same asset. In order to effectively evaluate stewardship, knowledge of fair value is not enough. Users also need to know the historical cost of the investment.

Indeed, the best understood concept of profit is the excess of selling price over historical cost. Decisions on whether to continue a product line or division or factory depend to a large extent on whether there is a favourable spread between revenue and cost. As a result, this paper claims that historical cost and fair value should not be considered as competitors and both of them should be provided. An attempt to choose either one would deprive financial statement users of access to complete and useful information for decision-making. For this reason, a dual measurement and reporting model should be a good solution. A dual measurement and reporting model could be more effective for assessing the success of an investment. Comparing expected events (i.e. fair values) with past events (i.e. historical costs) would improve the ability of financial statement users to evaluate both past performance, thus fulfilling a stewardship objective, and to predict future performance, thus fulfilling a decision usefulness objective.

Conclusion

This paper discusses fair value accounting and its usefulness to financial statement users by delineating the theoretical background for its adoption and providing evidence on its usefulness to investors. Proponents of the fair value accounting have argued that fair values for assets or liabilities reflect current market conditions and hence provide timely information, thereby increasing transparency. On the other extreme, opponents claim that fair value is not relevant and potentially misleading for assets that are held for a long period and, in particular, to maturity; that prices could be distorted by market inefficiencies, investor irrationality or liquidity problems; and that fair values based on models are not reliable. As a matter of fact, empirical evidence raises some concerns on the reliability of fair value estimates and for this reason a return to historical cost accounting often comes up for discussion.

This paper highlights that historical cost and fair value accounting must not be considered as competitors, as they serve different purposes. Historical cost provides investors with the cost of the investment, while fair value gives a measure of what the management expect to get in return from a certain investment. Knowledge of fair value is important, although it is not enough. Users also need to know the cost of the investment. In fact, knowing how much resources have been sacrificed to obtain that fair value, they could effectively evaluate stewardship. This paper therefore concludes that both historical cost and fair value should be provided as only together they can deliver complete and useful information to investors. As a consequence, the adoption of a dual measurement and reporting system should be considered and discussed at a standard setting level.

According to the advantages and disadvantages of the concept of fair value in accounting, it is quite obvious and clear that this concept is far from being perfect. It is very difficult to determine whether its contribution to the improvement of accounting is really beneficial. On the one hand there are many reasons why the users of this method are better off, but on the other hand there are also several reasons why they are worse off. In fact, many of relevant sources express their mixed views about the extent to which IFRS are becoming imbued with the current IASB/FASB fascination with fair value accounting (Novoa, A. & Solé J., 2009). Although the fair-value discussion seems to be far from over now, the current crisis provided an interesting setting to further explore these issues, understand them better and hopefully urge responsible institutions to fix the imperfections within the system to make it work correctly and more effectively.

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EXPLORING THE LINKS BETWEEN FAIR VALUE ACCOUNTING AND FINANCIAL CRISIS

S u m m a r y

The conventional accounting system favours the usage of amounts at which the elements of financial statements were measured at the date of their initial recognition. Historical costs possess some advantages; objectivity and conclusive evidence are in the first place. They can serve as a prudence measure for the protection of entity's creditors. Unfortunately, historical costs are not suitable and relevant for economic decision-making and they deteriorate the stewardship function of accounting from the view of entity's owners. As a reaction to those disadvantages standard setters prefer measurement attributes based on current market information and assumptions for preparing the financial statements by publicly responsible entities. Fair value is considered the most useful market characteristics as far as measurement in financial reporting concerns. The purpose of this paper is to show the weaknesses and disadvantages of using fair value measurement in accounting.

According to the advantages and disadvantages of the concept of fair value in accounting, it is quite obvious and clear that this concept is far from being perfect. It is very difficult to determine whether its contribution to the improvement of accounting is really beneficial. On the one hand there are many reasons why the users of this method are better off, but on the other hand there are also several reasons why they are worse off. In fact, many of relevant sources express their mixed views about the extent to which IFRS are becoming imbued with the current IASB/FASB fascination with fair value accounting. Although the fair value discussion seems to be far from over now, the current crisis provided an interesting setting to further explore these issues, understand them better and hopefully urge responsible institutions to fix the imperfections within the system to make it work correctly and more effectively.

KEYWORDS: fair value accounting, financial crisis, measurement, valuation, accounting income, economic income

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ANTHROPOLOGICAL LEVEL OF THE MARITIME LEADERSHIP

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Annotation
Anthropological ideas of the maritime leadership development are discussed at the integral level of the vocational preparation of seafarers and skilled port workers in the paper. Development of the maritime leader's personality, based anthropologically by applying the universal vocational preparation, is revealed regarding vocational schizophrenia, division of theory and practice, emphasizing of physical functions by ignoring the valuably psycho-emotional activity, the whole of personality's principles at work, harmony of the maritime and continental self-concept, formalism of the EU conventions and the needs of the labor market, higher education as a universal vocational preparation, defragmentation of the vocational preparation, negative effects of the environment and the development of resistance to them. The type of the research is theoretically descriptive. The main methods, such as analysis, interpretation, heuristic analysis and synthesis, and methodological principles, such as existentialism, cognitive psychology and the paradigm of universal education, were used in the research.
KEYWORDS: maritime leadership, anthropology, vocational preparation, integral personality.

Introduction

Relevance and novelty of the problem. We have to adequately respond to vocational challenges of the work at extreme conditions. So, it is appropriate to bring up the personality based anthropologically, and to develop the maritime leadership as his/her special competency.

The most important field of this kind of researches is a vocational socialization (in a broad sense) as a special process by according to the needs of the labor market because of vocational competencies internalized for a successful professional activity.

Issues of the vocational socialization are globally raised in scientific works by considering the various factors of a successful integration into the labor market, and of survival therein (Scherer 2005; Koilias, Kostoglou, Garmpis, Heijden 2011; Basova 2012; Silva 2012; Navaitienė 2014; Lee, Porfeli 2015, etc.).

Preparation of seafarers and skilled port workers in the higher education must be based on anthropological criteria for the mature personality, so that a vocational development would be properly ensured and possibly smooth.

The methodology of the seafarers' preparation, based anthropologically, is especially important in processes of the maritime leader's vocational development because it helps formulate and solve the psychologically and hodegetically relevant issues of the vocational preparation by including theory and practice (Chapman 1992; Jezewska, Jaremin, Leszczynska 2007; Sąlyga 2007; Gerstenberger, Welke 2008; Lileikis 2011; Astikas 2012, etc.).

These issues are rarely discussed in the maritime science at the international level by prevailing professionalism with the problems of the maritime policy and of the maritime technology.

The problematic analysis of the integral personality consists of the vocational schizophrenia, division of theory and practice, emphasizing of physical functions by ignoring the valuably psycho-emotional activity, the whole of personality's principles at work, harmony of the maritime and continental self-concept, formalism of the EU conventions, and the needs of the labor market, higher education as a universal vocational preparation, defragmentation of the vocational preparation, negative effects of the environment, and development of resistance to them from the anthropological point of view.

The object of the research is an anthropologically-based development of the maritime leader.

The aim of the research is a consideration of anthropological ideas for the development of the maritime leadership from the integral point of view of the vocational preparation of skilled port workers and seafarers.

The tasks of the research are as follows:

1. Consideration of development of the integral personality in regard to vocational schizophrenia, theory and practice, physical functions and a valuably psycho-emotional activity, the whole of personality's principles at work, and harmony of the maritime and continental self-concept.
2. Discussion of ideas of the universal vocational preparation in reference to formalism of the EU conventions and the needs of the labor market, higher education as a universal vocational preparation, and development of resistance to the negative effects of the environment.

The type of the research is theoretically descriptive.

The main methods, such as analysis, interpretation, heuristic analysis and synthesis, were used in the research.

Methodological principles are as follows:

– Existentialism raises the existential issues of the human vocational life, and deep problems of the spiritual expression of the integral personality's nature that relates to the inner attitudes of the personality, and aspirations for the implementation of his/her natural vocation at the professional level;

– Cognitive psychology emphasizes a free and conscious personality who does not only passively depend on genes, sub-consciousness, reflexes and defense mechanisms but who is able to think, to learn and to improve; he/she is willing to become more conscious and integrally develop leadership competencies, and meaningfully choose a constructive vocational expression;

– The paradigm of universal education focuses on the development of all powers of the personality in the context of vocational preparation at the levels of horizontal and vertical human existence and of the biological, psychological and spiritual needs (Jovaiša 2001). This paradigm universally bases the development of competencies of the integral personality's self-leadership and leadership from the anthropological point of view.

Development of the integral personality

The needs of the healthy human are characterized by integrality from the anthropological point of view. All levels - physical, mental and spiritual - of human life must be harmonized. The vocational development is of great help to the personality who can express oneself at work and in his/her own life quite well by according to the self-leadership despite difficulties.

The anthropological basis of the European vocational development, and nowadays tendencies are analyzed. It is appropriate to raise a problem of the vocational schizophrenia (Gr. σχίζειν - to divide; φρήν - mind). The personality as a whole should not be divided into the human and the professional. General personal competencies compose the basis for development of the professional in a broad sense.

Theory and practice are artificially divided usually. Practice is more popular everywhere. Life is naturally broader than it can be described. However, the theory helps implement the practical needs from the scientific point of view. The scientific object of the research is presented in the broader socio-cultural, political and educational context but the practitioner is not interested in that. A conflict is naturally programmed.

However, the scientific theory can help a practitioner when he/she is seeking the higher education and development of his/her own mind.

It is important to help future seafarers and future skilled port workers expand their mental horizons, creatively combine theory and practice, and develop the maritime self-concept, insight and invention that determine the psychic self-regulation in difficult situations at extreme conditions, especially in the case of stress. Seafarers are experiencing a social isolation, monotony, loneliness or permanent being with the same people, and depression. It is appropriate to integrate the theory and practice in vocational studies in general.

The priority situation of theory or practice can rise:

– Practice is more important than theory when the person is subjectively searching for his/her own vocational direction, is trying, creatively modelling and transforming it because the situations are more complex in life than the conceptual models;

– Theory is more important than practice when you get, e.g. an elementary knowledge of work safety or when the vocational direction is scientifically objectified, compared and improved by using the scientific representative data on tendencies of experiences of seafarers and skilled port workers.

There are some conflicts at the level of expert evaluation of the maritime and port work:

– If the scientist is not a seafarer or skilled port worker, his/her researches of the hundreds of respondents unveil the objective facts in a broad perspective but these facts are surficial and not personally experienced;

– If the seafarer or skilled port worker is not a scientist, his/her results are subjective and based on the individual experience only. A synthesis of both representatives is mostly relevant. They can add something to the position of each other, so that every interested person could get the subjective and objective data in the universal context of the higher education.

Theory and practice might be synthesized as two equivalent levels of the same object in general:

– Theory is an instruction, which is a written practice, or results of empirical researches regarding the chosen scientific theory usually;

– Practice is a theory implemented and improved in working process.

Physical functions of the work are often emphasized. However, a valuable and psycho-emotional activity determines them only. So, the inner culture of the seafarer's and skilled port worker's personality determines the quality of physical functions. It is not appropriate to divide the physical and spiritual vocational activities of the personality.

Nevertheless, if only the spiritual or only the technological level of the personal vocational preparation is emphasized, then such position (as a life style of a future worker) would be opposed to the integral human nature regarding one's own career.

The long-life learning conception cannot be implemented by emphasizing the formal level of the vocational improvement. The personal self-development is based on the integral professional and general knowledge and abilities that must be permanently developed for the profession and for life from the anthropological point of view.

Vocation is a basic part of the socio-cultural human life. The personality gives meaning to his/her own life with the freely chosen ideals by permanently achieving and implementing a dynamic vocational activity.

William James (1842-1910) as a psychologist of USA has stated that ideals of the personality can create the dynamogenic feelings that promote energy. They are considered as the most proper engines for the activity in life (James cit. The Heart of William James 2010).

If the person develops the clear valuable ideals as aims of his/her life, of work, of efforts and self-limitation, and if he/she is independent and does not need an attention or approval of the society, and does not follow

fashions, and is strongly feeling of his/her own worth and can experience the sthenic feelings based on ideals, so, he/she is able to manage oneself in a difficult situation and crisis, and to keep his/her inner balance (Płużek 1996).

The vocational level as a mirror of the whole qualitative life (in this case) expresses the noblest worth of the personality when a sincere work, which is difficult and exhausts his/her health, is creating a product and is implementing the socio-anthropological idea of solidarity with others.

The human nature is expressed in the ideals and allows to creatively implement the professional area in a great mosaic of the labor market and quality of social life. The personality can authentically find oneself and improve in the society only because of his/her social nature.

The whole human and the whole his/her personal worth are implementing at work. So, the universal vocational development of the personality, especially in Eastern Europe, is considered as a tool of the integral preparation for the maritime career by developing the specific and general cultural and psycho-social competencies:

– To love oneself and others;
– To love his/her work and leisure;
– To appreciate one's own life;
– To extend his/her own needs;
– To learn experience a positive and socially valuable joy;
– To learn giving meaning to his/her different experiences and solve problems in accordance with the ideals and noble aims, and not fully giving up to the psychological repression.

The universal development includes a spiritual and psychological immunity, and is valid as a prevention and improvement of an adequate reaction to the possible difficulties, conflicts or injustice at work of seafarers and skilled port workers.

Studies of the personal valuable attitudes are more possible in the early youth when the cognitive level of values internalization is well-functioning regarding the psychology of the personality's development.

The older age is often not appropriate for studies of the attitudes because of life experience, disappointments, deviated values, exhaustion and illness. It was stated that psycho-physical disorders and especially exhaustion are often characterized by seafarers, and they find it difficult to learn and to think purposefully (Smith, Allen, Wadsworth 2006; Rapolienė, Sąlyga 2012).

The maritime sector is sometimes characterized by the popular pseudo-ergonomic opinion that lets refuse one's own personal principles, and work by implementing the proper and accepted values only. Such kind of a behavior would be not good for the mental health of the personality because of a division of principles into the proper and improper in this case. The personality is a whole psycho-physical system and all his/her values might be used at work as an integral part of human life.

If the managerial wisdom of the head helps create good working conditions, the worker will be able to implement his/her work with all his/her valuable principles, fully, sincerely and with joy. However, subordinates must be ready to accept the decisions of heads at normal conditions.

When the psychic of the worker is valuably divided in managerial relations, and when the worker is behavioristicly considered as a slave or an unconscious individual, then he/she will not be able to fully implement his/her work by revealing only a part of his/her own personality. If the head fails to constructively manage, he/she usually uses more control.

Vocational schizophrenia destroys the integrity of the personality and expresses confidence in fragmental substitutes of the life-content meaning by limiting it with the fragments of divided existence:

– Pleasure without joy;
– Tasty but the body not enriching food;
– Sex without love;
– Compensation of one's own psychological problems with some activity, which is not rendering meaning to the problematic personality, etc. Psychoanalysts have stated the tendency of ignoring of one's own problems by compensating them with the activity, including suicide.

The view to oneself and to the environment, and to oneself being in different environments is divided. Self-consciousness and perceiving of the environment are naturally integral because the both are composing the general whole, and depend on each other. The maritime self-concept is combining with the one on land. Integral self-expression of the personality is important for the quality of his/her work and for his/her psycho-physical health.

Preparation for working at sea depends on the preparation for working in general and firstly on land. Former seafarers become skilled port workers usually. The person is the same everywhere but his/her characteristics reveal itself more at extreme conditions (Šileris 2007).

A healthy human is characterized by integral self-consciousness. His/her thinking, speech and behavior are harmonious. Respect of foreign people is based on respect and self-respect in homeland. Future seafarers and skilled port workers are often meeting, e.g. Muslims in the ship-crew and in port.

The danger of the multicultural development can rise when it is separated from the integrally cultural, ethnic and moral personal self-knowledge from the formal and economistic points of view of the maritime leadership development.

Ideas of the universal vocational preparation of maritime workers

The meaning of the higher education for nowadays vocational preparation is conventionally rehabilitated. However, scientists note that the content of EU conventions and its implementation are too formal and are too much based on control and standards.

Narrowly thinking specialists with the limited competency are prepared by applying control. Fast technological and social transformations do need an operative reaction, so, specialists who would be able to quickly transform their skills and to think analytically and creatively.

Globalization provokes to resist to the development of narrowly defined competencies, and demands more consideration on a preparation of analysts as creators. It is an opposition to the standardization (Duoblienė 2010).

It seems that employers are searching for experienced workers but indeed they wish obedient people, "automates" or "robots", subordinates with lower intelligence who do not know their rights, are (not creative) "practitioners", so that employers could manipulate them with methods of modern slavery (Höffner 1996).

Reach supporters of higher schools are seeking an intervention into the programs of higher studies by wishing impoverishment and shortening of them by basing on economy and mentioned manipulation.

However, educated employers perceive that a creative, independent and responsible worker with the higher intelligence is more useful for the organization. Consciousness of workers of the maritime industry is emphasized from the point of view of the maritime self-concept development (Lloyd's Register Educational Trust 2004).

It is useful to prepare mediocrities regarding narrow manipulative and politically economic interests but it is not acceptable in reference to the science and culture. Only the higher school can prepare the maritime elite, especially when seafarers are working at the managerial level. The maritime leader is naturally related to the universal education. When the seafarer is characterized by the limited mentality, he/she becomes a danger to oneself and to the ship crew at dangerous work.

Higher schools provide a higher education firstly and only then - the professional qualification (in a narrow sense) despite the criticism of higher education and science in the world. Achieved education should serve the whole qualification of the personality including the vocation with integrated approach.

European culture tradition expresses the universal implementation of the education heritage regarding Judeo-Christian ideology. Lithuanian professors (Šalkauskis 1936; Jovaiša 2001; Tijūnėlienė 2003) have mostly analyzed the universal and integral development of the personality. Comprehensive education is enriching the personality with the consciousness that is important to development of the maritime self-concept by experiencing one's self-esteem and by satisfying the needs at the physiologic, psychologic and spiritual levels.

Vocational preparation of seafarers and skilled port workers is quite integral in Eastern Europe when practical actualities of the personality's universal development are analyzed as a scientific problem.

Continuous improvement of the personality is implementing along with the vocational preparation that composes an integral part of the personality's development. The education system requires harmony of the both components as directions of the personality's self-development from the andragogic point of view.

Lithuania is characterized by tradition of the seafarers' universal preparation based on I Republic and Soviet time. The system of the seafarers' preparation in Eastern Europe might be an example for some other European maritime countries, characterized by post-protestant mentality, that provide preparation of seafarers and declare the maritime high-tech meaning.

However, those countries do not show significant educational efforts for the preparation of cultural, responsible and noble seafarers who should represent their countries well and who would be interested in not only material salary but also in culture and would be able, e.g. to take on one of another nation into the ship crew and should wish to become open-minded and prosocial seafarers in general being positively proud of his/her profession in the society.

It is appropriate to develop the entire personality of the seafarer and skilled port worker regarding dynamic harmony of his/her attitudes, views, understanding; valuable, moral and professional position, abilities, accordance to the vocational activity at the physical, mental and socio-cultural level by improving the competencies. The seafarer or skilled port worker firstly is a human whose competencies integrally mark the structure of the personality as a professional.

We can hope that not only a professional seafarer but also a skilled port worker (who is conscious and matured in the academic culture characterized by the wide approach traditions) will be able to apply a responsible flexibility regarding to non-standard situations by adapting oneself to the unusual technique or another different person from the hodegetical point of view. Nowadays a good education firstly means a nonstandard thinking, high level of creativity and flexible approach and behavior.

If the seafarer or skilled port worker develops a multipolar view, then their improved mental content empowers them:

– To take the creative potencies to solve problems in any unusual situation;

– To model or remodel the scenario of his/her own maritime career;

– To foster and forecast the culture of his/her own relationships to oneself and to the natural, social and technological environment.

The universal education as a universal development produces creative potencies and stimulates the personality to feel better his/her worthiness. We can find a lot of different and selective (so called "practical") fragments of the simulative preparation in the higher education that is increasingly commercialized.

However, the necessity of defragmentation of the vocational preparation is naturally relevant in the nowadays epoch that is often characterized by destructive expressions and suicide from the classical point of view.

Wisdom does not allow to be *pro forma* limited with minimal fragments of the studies subjects in the higher maritime science. However, it is appropriate to help create and develop the full-fledged personality of the worker by revealing ways for the permanent and integral personal self-education by implementing the conception of long-life learning that is published in international documents of the higher education.

We need a systematic approach to education policy based on the development theory, so that the natural needs of the vocational self-development of future maritime leaders, who study and enrich themselves, would be satisfied.

Seafarers and skilled port workers must be professionally characterized by three main characteristics:

– Valuable characteristics based on positive life philosophy and constructive socio-cultural ideology;

– Business characteristics as special functions;

– Psychological characteristics, especially strategic and operative thinking, adequate reaction in nonstandard situations, ability of working independently and in a team, self-confidence, organization and permanent learning.

Quality of the work directly depends on the environment, on which must be creatively and responsibly responded by searching and taking on necessary deals (Ramsden 2000). A developed deeper and socially responsible approach to one's own life (despite negative effects of the environment) promotes to choose and appreciate an adequate, constructive and original way, which helps authentically and conventionally react in critical situations, in cases of force majeure, at bad weather conditions, by damage of technique and by experiencing psychological problems.

Seafarers have less opportunity to go ashore by strongly applying of new technologies, by accelerating of cargoes handling and by decreasing a number of crewmembers in some past decades. All their professional life is often limited by vessel.

So, it is very important to be able to cope with:

– Hard work,

– Undefined regime of working and leisure,

– Long hours of working,

– Noise,

– Vibration,

– Changing of meteorological conditions,

– Isolation from the family and friends,

– Frequent emotional tensions,

– Psychological terror (Kahveci 1999; Sąlyga 2007; Sąlyga, Malakauskienė, Jonutytė 2008). The wider psycho-educational analysis of these issues is presented in the scientific monograph "Methodology of cultural and psychosocial maritime education" (2011) written by the author of this paper.

Possibilities of the personality's prosperity are encoded in the human nature. Integral vocational maritime preparation, based anthropologically, at the higher school is valid as a condition for development of the natural maritime self-concept and adequate self-esteem in any situations of the work and life from the complex point of view.

The long-term researches of the author of this paper have shown that future seafarers and future skilled port workers taking part in *Erasmus+* program for studies abroad, and seafarers in the professional practice at sea use opportunities to visit other countries. They are able to observe, to fascinate themselves and to be interested in architecture masterpieces of buildings, traditions of local societies and national variety of the place.

Future seafarers and future skilled port workers fix all that and then share their experienced impressions with younger students at the Lithuanian Maritime Academy in public seminars by demonstrating photos or mini-movies and quite didactically commenting them.

Future maritime leaders respectfully enrich themselves abroad; they are able to represent their homeland well and to develop their own natural full-fledged personalities.

Conclusions

We can formulate one general thesis based on anthropological ideas of the maritime leadership development regarding vocational preparation and professionalism. The integral approach to the personality of the seafarer and skilled port worker and to development of the maritime leadership allows:

– To create the universal local systems of the higher maritime vocational preparation;

– To combine natural, adequate and positive relationships between the holistic development of the human nature data and complex conditions of working on land and at sea at the culturally vocational level.

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ANTHROPOLOGICAL LEVEL OF THE MARITIME LEADERSHIP

S u m m a r y

We have to adequately respond to vocational challenges of the work at extreme conditions. So, it is appropriate to bring up the personality based anthropologically, and to develop the maritime leadership as his/her special competency.

The most important field of this kind of researches is a vocational socialization (in a broad sense) as a special process by according to the needs of the labor market because of vocational competencies internalized for a successful professional activity.

Issues of the vocational socialization are globally raised in scientific works by considering the various factors of a successful integration into the labor market, and of survival therein (Scherer 2005; Koilias, Kostoglou, Garmpis, Heijden 2011; Basova 2012; Silva 2012; Navaitienė 2014; Lee, Porfeli 2015, etc.).

Preparation of seafarers and skilled port workers in the higher education must be based on anthropological criteria for the mature personality, so that a vocational development would be properly ensured and possibly smooth.

The methodology of the seafarers' preparation, based anthropologically, is especially important in processes of the maritime leader's vocational development because it helps formulate and solve the psychologically and hodegetically relevant issues of the vocational preparation by including theory and practice (Chapman 1992; Jezewska, Jaremin, Leszczynska 2007; Sąlyga 2007; Gerstenberger, Welke 2008; Lileikis 2011; Astikas 2012, etc.).

These issues are rarely discussed in the maritime science at the international level by prevailing professionalism with the problems of the maritime policy and of the maritime technology.

The problematic analysis of the integral personality consists of the vocational schizophrenia, division of theory and practice, emphasizing of physical functions by ignoring the valuably psycho-emotional activity, the whole of personality's principles at work, harmony of the maritime and continental self-concept, formalism of the EU conventions, and the needs of the labor market, higher education as a universal vocational preparation, defragmentation of the vocational preparation, negative effects of the environment, and development of resistance to them from the anthropological point of view.

The object of the research is an anthropologically-based development of the maritime leader.

The aim of the research is a consideration of anthropological ideas for the development of the maritime leadership from the integral point of view of the vocational preparation of skilled port workers and seafarers.

The tasks of the research are as follows - consideration of development of the integral personality in regard to vocational schizophrenia, theory and practice, physical functions and a valuably psycho-emotional activity, the whole of personality's principles at work, and harmony of the maritime and continental self-concept; discussion of ideas of the universal vocational preparation in reference to formalism of the EU conventions and the needs of the labor market, higher education as a universal vocational preparation, and development of resistance to the negative effects of the environment.

The type of the research is theoretically descriptive. The main methods, such as analysis, interpretation, heuristic analysis and synthesis, and methodological principles, such as existentialism, cognitive psychology and the paradigm of universal education, were used in the research.

We can formulate one general thesis based on anthropological ideas of the maritime leadership development regarding vocational preparation and professionalism. The integral approach to the personality of the seafarer and skilled port worker and to development of the maritime leadership allows:

– To create the universal local systems of the higher maritime vocational preparation;

– To combine natural, adequate and positive relationships between the holistic development of the human nature data and complex conditions of working on land and at sea at the culturally vocational level.

KEYWORDS: maritime leadership, anthropology, vocational preparation, integral personality.

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DETERMINANTS OF THE LABOR MARKET SUCCESS OF STUDENTS GRADUATED IN SZENT ISTVÁN UNIVERSITY IN HUNGARY

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Annotation
This case study is based on surveys carried on, by the Graduate Career Tracking System (GCTS) in Szent István University (Hungary). The "GCTS" surveys provide good opportunity to follow up careers of the graduates, to evaluate their opinion on their jobs and tasks and to examine how the graduates think about the usefulness in labor market of skills and competencies have been gained by universities as well.
In our survey (amongst young graduates' success in labor market) we have examined not only the classical economic indicators - such as income, chance of becoming employed and the average time till the first employment after graduation, but some other factors as well: the link between the current/last job and the qualification awarded, willingness to change job, judging the prestige of job, job satisfaction in various aspects of work: the content of work, the technical part of the work, income and benefits, career advancement opportunities, and personal and material conditions of work.
We have taken into consideration the multi-dimensional aspects of success of labor market, and we have tried to explore success factors as well. The research is intended to select groups of indicators (factors), which contents based on common professional information given by the respondents.
Logistic regression models have been set up to analyze cause of the factors of the labor market success or (failure).
In terms of success characteristics presumed to be relevant, we chose those factors, which ones adapted by the Graduate Research survey in 2015, (participation in mobility programs during the period of studies, family status, home, family financial background, parents' graduation, work experience, etc).
During our examination we have differenitiated the target population not only by the level of training area (agricultural sciences, economics, engineering, teachers training, liberal arts) but training level (BA/BSc, MA/MSc) as well.
We examined differences in structure and overall level of labor market success amongst sub-populations formed by group creating factors.
The statistical methods applied: independent samples t-tests, Principal Component Analysis, logistic regression models, generalized linear models.
Statistical processing of data performed by the IMB SPSS 22 software package.
KEY WORDS: Labor Market Success, Graduate Career Tracking System, Higher Education Graduates, Principal Component Analysis, Logistic regression Model

Introduction

The Bologna process was implemented in European Higher education system in 2006-2007. One of the main aims of implementation of Bologna Process in European Higher education system was to support the modernization of education and training systems to make sure these meet the needs of a changing labor market. This especially is important nowadays as young people have been severely hit by the economic crisis also in some EU countries including Hungary and during the recovery the proportion of jobs requiring high skills grows, and the demand is shifting as structure of economies is changing. In Yerevan in May 2015, the Education Ministers of EU countries have stated that the enhancing the quality and relevance of learning and teaching and fostering the employability of graduates throughout their working lives are the key priorities of development of higher education system (EC 2015). Because of this and increasing competition between universities every university need to get clear picture about the success of their graduates on the labor market. There is no universally accepted parameter system for classification of recent graduates' labor market success.

There is increasing number of research working on finding suitable indicators and measurement technical things to give the required information (Chowdry 2013, Joensen 2009, Kozma-Illés 2009, Krawczyk 2015, Varga 2013, Veroszta 2013). This paper shows an alternative methodology and its application is presented based on the experience of Szent István University in Hungary.

Szent István University (SZIU), one of Hungary's most prominent institutions of higher education, consists of seven different faculties for study and research hosting approximately 14,000 students. The university campuses, located throughout the country, are home to some beautiful buildings in Hungary, offering students and staff a comfortable, relaxing environment for the attainment of knowledge. With parts of its history dating back well over two centuries, SZIU blends Hungary's rich traditions with cutting-edge technology to meet the needs of its students in today's competitive labour markets.

Within the seven faculties degree programs are offered in a wide variety of subjects ranging from natural sciences, engineering and veterinary medicine to business, economics, social sciences, health sciences and pedagogy. Programmes are available at every level from vocational training to PhD and beyond.

The recent graduates' labor market success is most often measured by income surplus of becoming employees and being more educated. The multi-dimensional aspects of labor market success have also been underlined by investigations in EU (EC 2015) and Veroszta (2010) too. Labor market success of young

graduates should not only be mentioned with and measured by income and chance of becoming employed.

More common indicators are as follows (Cedefop 2010):

- Transition from education to work;
- Employability: on average, how likely it is that they will find a good and meaningful job after graduation;
- Unemployment rate and probability of becoming unemployed;
- Relationship between income and educational attainment;
- Qualification mismatches: discrepancies between graduates' level of education or skills and the level of education or skills required by their job.

Material and methods

In 2010 the Szent István University (SZIU) joined the national central system named the Graduate Career Tracking System (GCTS). Every spring since 2010, an on-line survey (amongst students and graduated) has been carried out by the university.

Since 2012 this survey has not only been focused on the whole number of active students of college and university education, and BA/BSc, MA/MSc., but graduated three and five years ago as well.

This case study is based on surveys carried on, by the Graduate Career Tracking System (GCTS) in 2013, 2014 and 2015. These students graduated in SZIU and during the period of the survey they are considered to be graduated for a year!

In 2013, 350 graduated, in 2014, 375 graduated and in 2015, 537 graduated answered the on-line questionnaires. Well, the total number of the sample: 1262 persons.

We examined differences in structure and overall level of labor market success amongst sub-populations formed by group creating factors.

The statistical methods applied: independent samples t-tests, Principal Component Analysis, logistic regression models, generalized linear models. Statistical processing of data performed by the IMB SPSS 22 software package.

Results and Discussion

The authors agree with Varga (2013) that young graduates' success in labor market has also been indicated not only by wages (income) but other factors as well. Such as: time for finding their first job and the link between their qualification and their profession.

In spring 2015, 84% of graduated in 2014, had a job. According to defining labor market status, 6.7% of them were unemployed.

Other students have not had a job yet, because of continuing university studies (6.9%), having children (2.6%) or some other reasons (1.5%).

A significant difference has been determined by independent samples t-test ($p < 0.001$), in the average amount of monthly net earnings, between the two levels of education (BA/BSc, MA/MSc). It is worth studying further, since graduated in SZIU can expect better earnings with (MA/MSc) master's degree, compared to the BA/BSc degree (Figure 1).

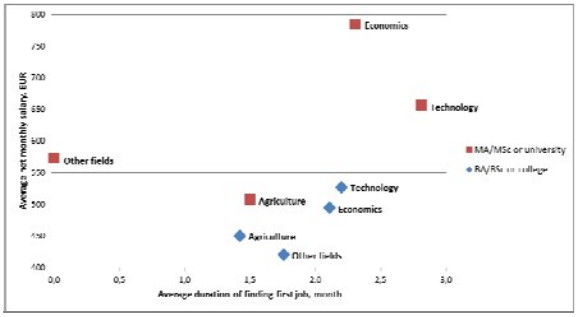

Fig. 1. Average wages, job finding times graduated in SZIU in 2014
(Source: primary research by the authors based on survey by "GCTS" SZIU in 2015)

Fewer differences can be established between the training fields of (BA/BSc) basic courses based on time having found the first job after graduation.

In respect of the masters' program, graduated in economical and technical training fields were looking for their first jobs longer time on average, compared to graduates in agricultural and other (educational, liberal arts, medical doctor and healthcare and sciences, social sciences and natural sciences) training fields.

It is interesting that 62.2% of BA/Bsc graduated in agricultural fields have found job in their fields of competence, which is the lowest percentage (%) compared to the other training fields. Meanwhile 96.4% graduated of master's degree in agricultural fields have remained in their chosen field as well (Figure 2).

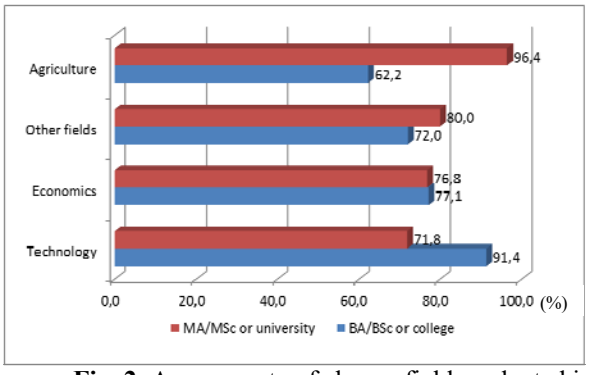

Fig. 2. Average rate of chosen field graduated in SZIU in 2014
(Source: primary research by the authors based on survey by "GCTS" SZIU in 2015)

Table 1. Indicator system measuring the labor market success of graduates, or the lack of it

Dimension	Indicator of success	Indicator of failure
The way from the education to world of work	When they have already had the Thesis they have full-time job employment or find a job during shorter time than the average (within three months)	They have not found a job for the period after the graduation till the time of the survey or found a job during longer time than the average (more than four months)
Wages	According to the ranking of the wages they belong to the top 25%	According to the ranking of the wages they belong to the bottom 25%
The current labor market situation	The employment is permanent and indefinite	–
Connection (link) between the professions and jobs	The job is fitting to the diploma or being in connection with the specialization	–
Employee (job) satisfaction	According to ranking of six aspects giving ratings scale scores by Four-point Likert-scale, they belong to the top 25%	According to ranking of six aspects giving ratings scale scores by Four-point Likert-scale, they belong to the bottom 25%

(Source: primary research by the authors)

The success of graduates in the labor market has been measured by indicator system, which we summarized in Table 1.

There were 1262 graduates in our sample, and 55 individuals (4.4%) met fully the criteria system of labor market success developed by the authors.

69 graduated (5.5%) was in the category of labor market failure. There are two groups where the number of the staff is low, which can be explained by incomplete responses.

Factors affecting the labor market success/ failure examined by Binary Logistic Regression model (Table 2).

Table 2. Factors affecting the labor market success (Binary Logistic Regression model)

Factor	p-value	Exp(B)
Training field: economics (ref.: agricultural)	,113	5,122
Training field: technical (ref.: agricultural)	**,012**	**18,003**
Training field: other (ref.: agricultural)	,865	1,256
Training form: MA/MSc (ref.: BA/BSc)	**,048**	**3,196**
Result: pass (ref.: good)	,915	,901
Result: satisfactory (ref.: good)	,966	1,037
Purpose of further education: Yes (ref: No)	,339	1,845
Has he/she learned abroad during the study: Yes (ref: No)	,367	2,697
Labor market status during the study: full-time employees (ref.: full-time students)	**,000**	**17,596**

Nagelkerke R Square = 0,603

(Source: primary research by the authors based on survey by "GCTS" SZIU in 2013, 2014 and 2015)

A further analysis was focused on job satisfaction of entrant workers. According to the data of the survey examined three years, the entrants were the most satisfied with the conditions of personnel, materials and substantive parts of the work and were the least content with income and benefits (Figure 3).

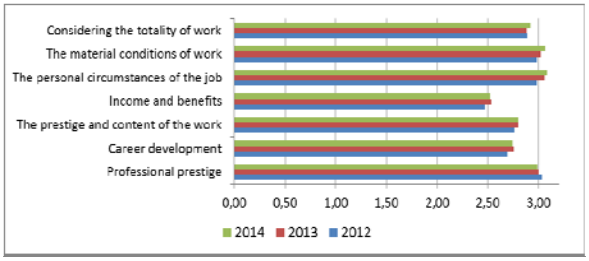

Fig. 3. Job satisfaction of certain aspects by giving scale scores in average

(Source: primary research by the authors based on survey by "GCTS" SZIU in 2013, 2014 and 2015)

They were less satisfied with career opportunities at the beginning of their professional career linked to career challenges. The average was not on the negative side of the four-point scale in any dimension at all. Based on answers of certain aspects of job satisfaction, an overall rating indicator has been created by the principal component analysis. The authors say that that the principal component as standardized numerical character is the most suitable to make a summary characterization about the job satisfaction.

The last steps of the analysis were to establish the linear regression model in order to identify factors that influence job satisfaction. Aggregate principal components measuring job satisfaction (Table 3.) are the target variables of models, the explanatory variables of model, the dichotomizing range of quality properties and natural logarithm of the net wage from the main job per month.

Table 3. Job satisfaction aggregated measured by principal components examined in 2013, 2014 and 2015

Point of view	Year		
	2012	2013	2014
Career development	0,781	0,788	0,834
Professional prestige	0,817	0,847	0,816
The prestige and content of the work	0,775	0,825	0,812
The material conditions of work	0,714	0,785	0,786
The personal circumstances of the job	0,774	0,787	0,782
Income, benefits	0,675	0,728	0,708
KMO	0,829	0,856	0,844
Bartlett's test	p<0,01	p<0,01	p<0,01
% of Variance	57,36	63,05	62,53

(Source: primary research by the authors based on survey by "GCTS" SZIU in 2013, 2014 and 2015)

Based on a determination multiple coefficients of linear regression models (Table 4.) we can conclude that the established models can only explain a small part of the job satisfaction among new graduated students of Szent István University.

Table 4. Variables of job satisfaction standardized beta values in generalized linear models

Explanatory variables+	Year		
	2012	2013	2014
Net wage per month (ln)	0,088	0,196	**0,310***
Training field: Economics (ref.: agricultural)	0,168	**0,560***	-0,375
Training field: Technical (ref.: agricultural)	0,118	0,256	**-0,483***
Results, average: Excellent (ref.:good)	**0,527***	-0,105	0,270
Has he/she learned abroad during the study: Yes (ref.: No)	-0,054	0,379	**0,722****
What extent do you use that knowledge in your work, which you learned during your studies: Not at all (ref.: Totally)	**-0,954***	-0,252	-0,536
What extent do you use that knowledge in your work, which you learned during your studies: A little bit (ref.: Totally)	**-0,582***	-0,095	-0,338
R^2,%	20,7	9,2	11,7

+ The table contains only information of the significant impact variables.

(Source: primary research by the authors based on survey by "GCTS" SZIU in 2013, 2014 and 2015)

In three years examined the effect of different factors were proved to be significant of job satisfaction. Those students who achieved outstanding academic results in 2012, they were more satisfied with their jobs. The fact that the graduates were unable to use their professional skills in their job, it is significantly reduced their job satisfaction.

Those students who graduated in economic fields in 2013, they were more satisfied with their jobs compared to graduates in agricultural fields. The positive effect of monthly net wages on job satisfaction is significant only amongst graduates in 2014. Among the same students graduated in technical fields were less satisfied with their jobs compared to graduates in agricultural fields. The participation of foreign studying has significant positive effect, which can only appear amongst students graduated in 2014.

Based on the results of empirical research the effected factors were not significant:

- Education levels (BA/BSc, MA/MSc),
- Trainings (full-time, correspondence),
- Working status during the studies (studying while working, "full-time" studying),
- Measured variables of support from the family:
  - Education level of mother (graduated, not graduated),
  - Relative financial situation of the family *(Much worse than the average - Average – Little bit better than the average – Much more better than the average).*

Among the explanatory variables there were indicators measured not only the over- but the under qualification as well.

Over-qualification means when new graduates get jobs with less expectations compared to the education of their own. The results of the survey amongst graduated in Szent István University a year ago, has not been confirmed that over- and under-qualification could have less influence on job satisfaction.

Conclusions

The survey results of graduates in Szent István University have been confirmed by the results of national representative surveys based on the Graduate Course Tracking System in 2011 (Kiss 2013). It is typical of graduates of Szent István University too that they are more satisfied with the personal circumstances and the content of job, they are less appreciated for their opportunities of professional and career development, and they are the least satisfied with their incomes. The common denominator is the main component, can explain more than half of six variables variance measuring job satisfaction. The monthly net wages are relatively not so significant compared to other aspects of job satisfaction. Considering the job satisfaction factors used by linear regression models, we can say that the results are not in line in every aspect with the results of two surveys. Unlike the results of a national study, we have not statistically demonstrated that over-qualification could cause decreasing effect on job satisfaction amongst graduated in Szent István University.

The determinants of labor market success of graduates have been evaluated by the binary logistic regression. Based on the results of empirical researches, we can say that students who graduated in technical fields have 18 times greater chance for success in labor market, compared to graduates in agricultural fields. Having

master's (MA/Msc) degree provides 3.2 times greater chance for success in labor market compared to having BA/BSc degree.

Those students who continue their studying while working, they have 17.6 times greater chance for success in labor market compared to "full time" learning.

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DETERMINANTS OF THE LABOR MARKET SUCCESS OF STUDENTS GRADUATED IN SZENT ISTVÁN UNIVERSITY IN HUNGARY

S u m m a r y

This case study is based on surveys carried on, by the Graduate Career Tracking System (GCTS) in Szent István University (Hungary). The "GCTS" surveys provide good opportunity to follow up careers of the graduates, to evaluate their opinion on their jobs and tasks and to examine how the graduates think about the usefulness in labor market of skills and competencies have been gained by universities as well.

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The survey results of graduates in Szent István University have been confirmed by the results of national representative surveys based on the Graduate Course Tracking System in 2011 (Kiss 2013). It is typical of graduates of Szent István University too that they are more satisfied with the personal circumstances and the content of job, they are less appreciated for their opportunities of professional and career development, and they are the least satisfied with their incomes. The common denominator is the main component, can explain more than half of six variables variance measuring job satisfaction. The monthly net wages are relatively not so significant compared to other aspects of job satisfaction. Considering the job satisfaction factors used by linear regression models, we can say that the results are not in line in every aspect with the results of two surveys. Unlike the results of a national study, we have not statistically demonstrated that over-qualification could cause decreasing effect on job satisfaction amongst graduated in Szent István University.

KEYWORDS: Labor Market Success, Graduate Career Tracking System, Higher Education Graduates, Principal Component Analysis, Logistic regression Model.

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FINANCE REGION FOR SUSTAINABLE DEVELOPMENT. SYNTHETIC DESCRIPTION OF FINANCIAL CONDITION

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Annotation
Działania samorządu mają wpływ na rozwój lokalnej gospodarki. Finanse stanowią podstawę realizacji zadań publicznych i rozstrzygają o warunkach rozwoju gospodarczego jednostki. Celem artykułu jest zdefiniowanie i opisanie wskaźnika syntetycznego służącego określeniu poziomu kondycji finansowej województw w Polsce. O kondycji finansowej świadczy m.in. zdolność do wykonywania zadań, poziom dochodów i wielkość wydatków, samodzielność finansowa. Przeprowadzone badania statystyczne potwierdzają istnienie dysproporcji w obszarze kondycji finansowej województw w Polsce. W badanym okresie czołowe miejsca utrzymywały śląskie (2003 - 0,66; 2005 - 0,61; 2010 - 0,48; 2014 - 0,56) i mazowieckie (0,65; 0,74; 0,57; 0,57). Na końcu rankingu znalazły się świętokrzyskie (0,38; 0,26; 0,31; 0,38), lubuskie (2003 - 0,33; 2014 - 0,17), podlaskie (2005 - 0,23), warmińsko-mazurskie (2010 - 0,24).
Key words: finance, rozwój, dochody, wydatki, kondycja finansowa, wskaźnik syntetycznzy.

Introduction

Territorial self-government is an association of the inhabitants of a given region, which administers the assets, provides services, manages the finance and so on, whose activities have indirect or direct influence on local economy. It is the biggest employer and investor, ordering party and client on the local market. Its tasks are usually unprofitable, which results in financing them from public resources [Gorynia, E. Łaźniewska 2009].

The stimulation of local economic development by the self-government administration of various levels proceedings is definitely reasonable. It is proven by an obvious fact that no enterprise functions in vacuum but in a certain physical and social space and in a given legal surroundings [Piontek 2006]. One of the main aims of local authorities' activities should be the creation and stimulation of local economy development. A lot of determinants decide of the directions and the pace of local development. Political, social, economic and financial can be counted as the most important [Łukomska-Szarek 2011].

Meeting the expectations and needs reported by the local communities is the essence of territorial self-government. The material basis of these endeavours may come from own budget and then the self-government, by their activation, aims at economic development. If the resources from outside play the dominating role in these proceedings, then the improvement of abilities of gaining such resources becomes the main aim of the self-governments [Heller, Farelnik 2013].

The aim of the study is to select a set of statistical features defining the financial condition of a voivodeship and to determine the possibilities of using the synthetic index method to distinguish the spatial differentiation of the units. The carried out analysis has a static character – concerning the differentiation of the index value, and dynamic – including the comparison of the situation of voivodeships in the studied years: 2003 (the year before the accession to the European Union), 2005 (a year after the accession to the EU), 2010 (a period of entering into force of the new act on public finance from 2009) and 2014 (a period of improvement of the social-economic situation after the crisis in the years 2007-2010; method described in Method of the study).

Method of the study

In order to compare the transformations happening during the studied years, the procedure of creating synthetic index was used. The following variables were chosen to build the synthetic index (per capita):

F1. total income, stimulant
F2. total own income, stimulant,
F3. personal income tax, stimulant,
F4. corporation tax, stimulant,
F5. income from property, stimulant,
F6. grants, destimulant,
F7. subventions, destimulant,
F8. total expenses, stimulant,
F9. assets and capital expenditure (investments), stimulant,
F10. current expenses, destimulant,
F11. expenditure on debt service, destimulant,
F12. expenditure on administration, destimulant,
F13. expenditure on health care, stimulant,
F14. expenditure on education and training, stimulant.

At first the variables were chosen based on statistical, substantial and formal criteria. Then the analysis of variables was done. Variables characterized by high spatial changeability (coefficient of variation

above 0.15) and high correlation under the extracted groups (coefficient above 0.75) were removed from the set [Zeliaś 2000; Wysocki 1996].

From the point of view of variability index, which means because of the stability of variables (quasi-stable variables), from the study eliminated were: F1 (0,2 in 2003; 0,3 in 2005; 0,2 in 2010; 0,2 in 2013) and F8 (0,2 in 2003; 0,3 in 2005; 0,2 in 2010; 0,2 in 2013). Studied variables in the analyzed years 2003-2013 were characterized by changeability, in 2003 from 0,2 to 1,1; in 2005 from 0,3 to 1,6; in 2010 0,2 to 1,3 and in 2014 from 0,2 to 0,9. The highest variability index was observed for F5 0,8 – 1,6; F4 0,5 – 0,7; F11 0,5 – 1,0 and F13 0,3 – 0,7.

Consecutively done analysis of correraltion matrix for variables indicates positive and negative correlations (in 2003 F1F6 (0,79) F2F3 (0,79) F7F10 (0,91) F1F3 (-0,43) F3F7 (-0,53) F9F12 (-0,32) F10F11 (-0,31); 2005 F1F4 (0,91) F2F3 (0,93) F3F4 (0,90) F1F7 (-0,25) F2F6 (-0,44) F8F11 (-0,43) F10F11 (-0,37); 2010 F2F3 (0,94) F3F5 (0,84) F4F5 (0,85) F2F7 (-0,63) F4F6 (-0,50) F12F14 (-0,01); 2014 F1F7 (0,79) F2F3 (0,89) F3F4 (0,94) F1F3 (-0,43) F2F7 (0,62) F11F13 (-0,1) F13F14 (-0,06)). From the study removed were: F1, F3, F4 – on the income side, F8, F10 on the expenses side, as features exceedingly correlated with one another, therefore as carriers of similar information.

In the next stage the normalization of diagnostic variables was done (stimulant czy destimulant) using the unitarization method. It requires the use of the following formula: for stimulant $X = \frac{x_{ij} - \min_i x_i}{\max_i x_i - \min_i x_i}$, destimulants $X = \frac{\max_i x_i - x_{ij}}{\max_i x_i - \min_i x_i}$, where: X – indicates the unitarized value of a feature for the studied unit, xij – indicates the value of j feature for a studied unit, max – maximum value of j feature, min – minimum value of j feature [Wysocki F., Lira J. [2005]. In case of lack of the model's, the maximum level of accounted indexes values are taken into assessment - $\max\{x_{ij}\}$.

The construction of financial condition index is based on non-model method, by means of a formula $s_i = \frac{1}{p}\sum_{j=1}^{p} x_{ij} (i = 1,2,...,p)$, where: Si – synthetic meater of financial condition of the municipality in the studied period, xij – features of the synthetic index structure, p – amount of partial indexes used in the construction of aggregate measure of financial condition. The index takes a value between [0,1]. Higher value of the index indicates a better situation of the object, lower value – weaker [Dziekański 2011; Bury, Dziekański 2012; Bury, Dziekański 2013; Mioduchowska-Jaroszewicz 2013].

4. grouping, creating classes of similar units (Ward mathod); the groups are characterized by approximate level of financial potential; linear arrangement according to decreasing values in terms of synthetic index values [Dziekański 2012; Dziekański 2011]; each range of values was interpreted as a situation: – [0,0; 0,2] very weak, – (0,2; 0,4] average, – (0,4; 0,6] weak, – (0,6; 0,8] good, – (0,8; 1,0] very good [Dziekański 2012].

Development and its conditioning

The finance is the basis of public tasks realization and decide of the conditions of economic conditions and investment activity of the unit. In addition, the costs of current tasks realization, as well as the availability of external sources of funding, also decide of the scale of investment activity. The limitation of financial resources becomes a problem in comparison with the range of realized tasks [Gonet 2013].

The local development should be done on the basis of endogenous factors, and the contentment of the inhabitants, the satisfaction of aspirations and the feeling of living conditions improvement should be the essential criteria of development [Kożuch 2011]. Various interpretations of the term of local development are the result of heterogeneity of phenomena which create it. The local development as a complex term includes economic, political and cultural changes; changes in institutions, groups and other types of social systems. Therefore, it refers to economic, social, cultural, political, ecological and spatial level [Kudłacz 2008, s.108-111]. The main factors of social-economic development are: geographic, scientific, technical, demographic, social and economic [Kupiec 2000, s.88-89].

The local development can be understood as a complex of quantitative and qualitative transformation which are connected to a given territory and refer to the level of living if the inhabitants and the functioning of economic operator. It is the process of shaping the transformations in the direction of rational spatial management and environmental and cultural heritage protection in a controlled, conscious and purposeful way. The self-government should play the essential role in creating a term understood in such a way [Ziółkowski, Goleń 2006, s. 62].

The balanced development should provide the society with fulfilment of ecologic, economic, social and cultural standards within the ecosystems capacity [Rogall 2010, s. 44]. The economic, technological and social progress has negative impact on natural environment. Therefore, the rational management of natural resources became the impulse to creation of a new economic management model largely based on rational usage of production factors [Ślebocka, Tylman 2014].

The voivodeship self-government has a statutory responsibility to lead the policy of development. The realization of this tasks requires appropriate financial resources. Insufficient own revenues require the use of external sources of funding of endeavours which serve the regional development [Hałaburda 2010].

Multidimensional character of financial condition

Multidimensional comparative analysis enables the comparison of complex phenomena and the hierarchization of the objects and their sets accounted in multidimensional spaces of features from the point of view of a certain characterization.

Budget is the most important instrument of territorial unit finance administration and local development management. It is the tool of accounting the self-government on its activities as well as the means of

communication of the self-government authorities with local community [Adamiak, 2005]. The budget indicates how the revenues should be shaped in terms of economic effects and social purposes, and how to distribute the burden of public expenditure. At the same time it is the indicator of public units' activity under the existing system [Jędrzejewski 2004]. According to the Act on territorial units' income, the income refers to or may refer to [Ustawa 2003, 2015]: own revenues, general subvention, targeted subsidies from the national budget, funds from foreign sources which are not repayable and funds from the budget of the European Union. Territorial self-government units, accordingly to the performed tasks, have the right to a share in public revenues (PIT and CIT; Ustawa 2003, 2009, 2015).

Budget, which is the financial plan of income and expenses, revenues and expenditure, enables defining the financial position of a unit and the degree of current and investment tasks realization. It is the source of information of excess or deficit which were achieved by the unit in a given year. It shows the range and the scale of commitment of the authorities in the public tasks realization [Szara 2014]. The rationalization of self-government activities as well as the active local tax policy and effective management of territorial self-government units' assets become necessary. The proceedings in the direction of rationalization of territorial self-government units' expenses are also indispensable [Jastrzębska 2012].

The assessment of self-government functioning and its development abilities can be done through the prism of finance. Financial processes are shaped by, inter alia, institutional, organizational, political and generally economic factors [Wyrębek 2010]. The formation of the revenues and the directions of funds allocation are the result of quantitative and qualitative need reported by the local communities in connection to the current financial situation of the unit [Sochacka-Krysiak 2003].

The financial condition is a complex phenomenon which is difficult to measure on the basis of one feature. Creating a synthetic variable, which aggregates a series of determinants of this phenomenon, is a way of assessing the financial condition. This variable is a tool of comparative analysis which focuses on the study of subjects in terms of various features.

Therefore the financial condition is not only the derivative of realized public tasks but it is also the bridge between the all the activities and endeavours taken by the self-government [Klepacki, Kusto 2009]. It depends, among other things, from: performed tasks, achievement of budgetary balance, the level of income, financial independence, the amount of investment expenses, obtaining extra-budgetary funds and the financial result [Ossowska, Ziemińska 2010].

The financial condition refers to the financial state in a given interval. There is feedback between the financial condition and the level of local development, understood as a complex of quantitative and qualitative transformations concerning a given area and referring to both the level of living of the inhabitants and the economic operators functioning [Sobczyk 2010].

Synthetic index of financial condition of voivodeships in Poland

The assessment of territorial self-government unit's attractiveness is connected with its possibilities and abilities to develop. It is affected by, inter alia, financial condition and owned resources. The increase of attractiveness requires the bearing of financial input [Dylewski 2006]. The process of economic development of a region depends from, inter alia, sources and scale of income generated by the unit. In the financial economy of the region, two major factors are distinguished, which create the basis of development: own revenues, which indicate the economic activity, and investments, which indicate the tendency to increase one's ownership conditions. They contribute to the improvement of living conditions and the general development. Own revenues of self-government depend from economic situation in the local scale, they are the evidence of territorial self-government unit's affluence, as well as of high financial independence in the area of funds spending [Famulska 2009, s. 7].

In case of expenses the state restricts their free formation by the territorial unit, by setting a list of obligatory tasks and conditions of realization of these and other tasks in a form of norms or minimum sizes (for example, degree of pollution of sewage released to a sink, the level of teachers' salary). As a result, first the region has to predict the funds for compulsory tasks, and secondly, for other purposes, even those considered as more important [Bury, Dziekański 2010]. The structure of budgetary expenses informs of the directions and intensity of development policy realized by territorial self-government units. The share of current and capital expenditure in the total amount of expenses indicates consumptive or pro-development directions of self-government proceedings; therefore, the increase of the share of investments is a positive phenomenon. The investments connected with infrastructure influence the improvement of competitiveness of local economy and the increase of attractiveness for potential investors. They are connected with widely understood investing activity in various areas, such as urban economy, education or transport, and they affect the improvement of development potential [Sobczyk 2010, s. 125–136].

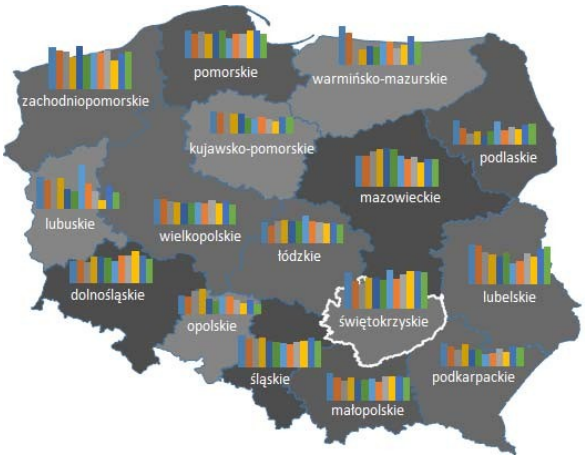

Fig. 1. Synthetic index of financial condition of voivodeships in Poland in 2014

The statistical research done confirm the existence of disproportions in the area of financial condition of the voivodeships in Poland. The order of the voivodeships in the ranking has not basically changed in the following years. During the studied period of time the leading positions were held by śląskie (2003 – 0.66, 2005 – 0.61, 2010 – 0.48, 2014 – 0.56) and mazowieckie voivodeships (0.65, 0.74, 0.57, 0.57). At the end of the ranking were świętokrzyskie (0.38, 0.26, 0.31, 0.38), lubuskie (2003 - 0,33; 2014 - 0,17), podlaskie (2005 - 0,23), warmińsko-mazurskie (2010 - 0,24; table 1, fig. 1).

The high index of financial condition of a voivodeship (śląskie, mazowieckie, dolnośląskie) is, inter alia, appropriate level of own revenues or expenditure potential of local budgets as well as the ability to realize pro-development investment projects. With a worse situation in the area of financial condition the units have difficulties with creating own revenues. These are usually voivodeships located in the poorly developed Eastern part of the country (świętokrzyskie, podkarpackie, lubelskie, podlaskie, warminsko-mazurskie), with significant development needs (for instance because of infrastructural gap or significant decapitalisation of a part of owned property).

The hierarchization of the municipalities based on decreasing synthetic value of financial condition criteria. The groups are characterized by approximate level of financial condition. The information about which voivodeships are in particular groups may have practical meaning both for the unit's authorities and for i.e. investors making decisions about the company's location.

Based on selected variables it is possible to notice that the financial condition of voivodeships in Poland is difficult. The values of synthetic measurement were improving, worsening or stayed at unchanged level (table…). The analysis enabled the division of voivodeships into 5 groups. The vast majority of voivodeships belongs to group C (2003 – 11 units, 2005 – 7, 2010 – 6, 2014 – 7) and D (2003 – 3, 2005 – 7, 2010 – 10, 2014 – 8). There are no voivodeships in group A and E (except for lubuskie voivodeship in 2014) and there were none in group B in 2010 and 2014 (śląskie and mazowieckie in 2003 and 2005). A shift in time can be observed between the groups (table 1, fig. 1).

In the aspect of financial condition the value of synthetic measurement fluctuated between 0.66 and 0.33 in 2003, 0.74 and 0.23 in 2005, 0.58 and 0.24 in 2010 and 0.57 and 0.17 in 2014. In case of świętokrzyskie voivodeship the value of the index was at the level of 0.38, 0.26, 0.31 and 0.38 consecutively in the studied years (table 1).

The assessment of the matrix of correlation of financial condition synthetic index and the basic magnitudes describing financial economy of a voivodeship indicates positive and negative level of relation. In 2003 the level of correlation of condition index and own revenues (F2) equaled 0.79, subsidies (F6) -0.47, subventions (F7) -0.77, current expenses (F10) -0.72; in 2014 accordingly with F2 0.55, F6 -0.79, F7 -0.67 and F10 -0.04.

		2014					
		F2	F6	F7	F9	F10	WSP.
2003	F2	1	-0,25	-0,62	-0,38	0,54	0,55
	F6	-0,51	1	0,75	0,52	0,45	-0,79
	F7	-0,50	0,36	1	0,73	0,24	-0,67
	F9	-0,27	0,62	-0,02	1	0,20	-0,29
	F10	-0,38	0,47	0,91	-0,09	1	-0,04
	WSP.	0,79	-0,47	-0,77	0,07	-0,72	1

Fig. 2. Index of correlation of financial variables and synthetic index

In relation year on year the value of synthetic measure of financial condition does not have stable position. In the studied years 2003-2014 both positive relations year on year and negative relations were observed. The positive transformations took place in podlaskie (6), pomorskie (6), mazowieckie (4), świętokrzyskie (4), lubuskie (3) and kujawsko-pomorskie (3), which can be interpreted as a development. Negative changes were noticed in all the voivodeships, which can assessed as period of regression (table 2).

The analysis of scatter diagrams presents what kind of relation we "have to deal with". The positive relation means that the increase of results on one variables is accompanied by the increase of results on the other variable. As shown on fig. 3 on the best position in the context of relation of own revenues and financial condition index, in the best situation in 2003 and 2014 was mazowieckie voivodeship, in the worst in 2003 swietokrzyskie and lubelskie and in 2014 podlaskie and lubelskie. In case of relation of investments and condition index in 2003 śląskie, lubelskie and swietkorzyskie were the best and podlaskie was the worst while in 2014 – warminsko-mazurskie, lubelskie and podlaskie were the best and mazowieckie and śląskie the worst. The voivodeships were diverging from the model, the majority of voivodeships was characterized by unfavourable situation.

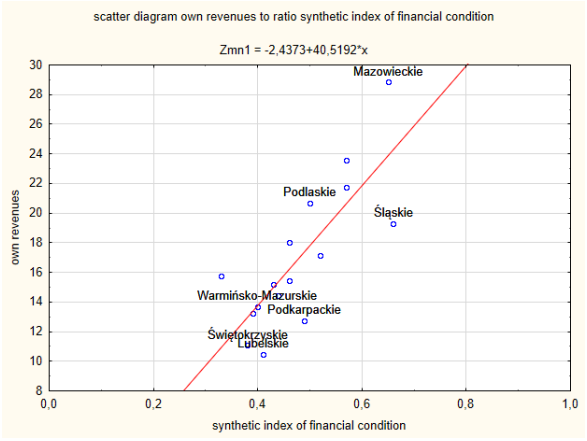

Fig. 3. Own income and synthetic index of financial condition in 2003

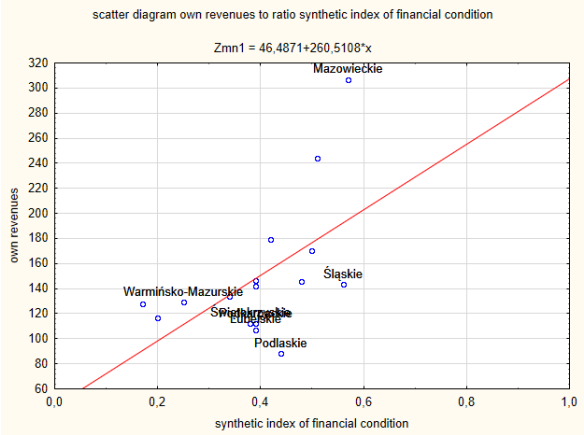

Fig. 4. Own income and synthetic index of financial condition in 2014

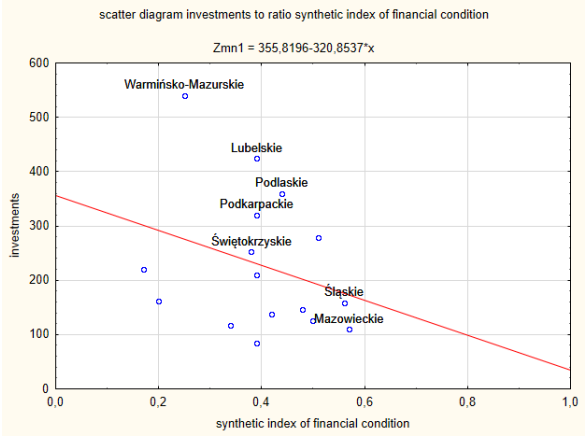

Fig. 6. Investments and synthetic index of financial condition in 2014

Mazowieckie voivodeships belongs to one of the most internally differential voivodeships, with Warsaw (which affects significantly the region's position), which concentrates inter alia sizeable social and economic potential. The region of the remaining part of the voivodeship is poorly developed. Mazowieckie voivodeship is the biggest in Poland in terms of surface and population. Currently horticulture (of apples and plums), gardening (of pepper), cattle and poultry farming are dominating directions of agricultural production in Mazovia. All branches of agri-food processing, dairy and meat industry are developing. Mazowieckie voivodeship stands out in the country with the highest level of economic development. The essential economic, capital and intellectual potential is concentrated in Warsaw and Warsaw agglomeration. Sub-regions of the voivodeship are characterized by poorer economic potential and lower development dynamic [Regionalny Program 2013, 2015].

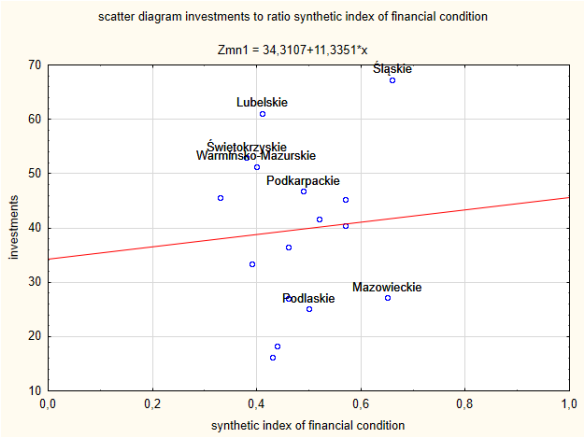

Fig. 5. Investments and synthetic index of financial condition in 2003

Śląskie voivodeship is one of the most attractive (competitive) regions in Poland. It is caused by natural resources – the biggest in Poland coal deposits, fields of zinc and lead ores – which results in a significantly industrial character of the region (energy and raw materials and metallurgic). Moreover, there many other industrial plants, both heavy industry and advanced technology, in the voivodeship.

In the Southern and Eastern part of świętokrzyskie voivodeship agriculture, horticulture and gardening dominate. The region's economy is based on extracting industry in the area of building materials (limestone, dolomites, marl, gypsum, sandstone, sulfur). Building companies belong to the biggest and the most dynamically developing in the country. Industry – metallurgic, machinery, precision and food processing – plays an important role in the region.

In lubuskie voivodeship the relation between own revenues and total income in the years 2003, 2005, 2010 and 2014 equals accordingly: 0.10, 0.41, 0.26 and 0.24; while the relation between investments and total expenditure equals: 0.28, 0.37, 0.45 and 0.43, which affects financial condition index. Industries from almost each branch (timber, food, metallurgic and paper industry, production of building materials and glass, energy and furniture industry) function in the region. The good state of the environment and good climatic conditions encourage agriculture development, even though soils of worse quality dominate in this region. The role of small and medium companies sector (up to 250 employees) is still increasing. The economic activity lead by natural persons dominates. Enterprises from four sectors of economy: trade and repair, real estate maintenance, transport, storing and communication and building trade [Charakterystyka http://].

Table 1. Synthetic index of financial condition of voivodeships in Poland

	2003	2005	2010	2014
0,80 ≤ S < 1,00 very good (A)	-	-	-	-
0,60 ≤ S < 0,80 good (B)	śląskie 0,66 mazowiecki 0,65	mazowieckie 0,74 śląskie 0,61	-	-
0,40 ≤ S < 0,60 average (C)	małopolskie 0,57 pomorski 0,57 wielkopolskie 0,52 podlaskie 0,50 podkarpackie 0,49 dolnośląskie 0,46 kujawsko-pomorskie 0,46 łódzkie 0,44 zachodniopomorskie 0,43 lubelskie 0,41 warmińsko-mazurskie 0,40	pomorskie 0,55 kujawsko-pomorskie 0,49 wielkopolskie 0,48 opolskie 0,48 łódzkie 0,45 dolnośląskie 0,45 małopolskie 0,42	dolnośląskie 0,58 mazowieckie 0,57 pomorskie 0,51 śląskie 0,48 łódzkie 0,46 wielkopolskie 0,43	mazowieckie 0,57 śląskie 0,56 dolnośląskie 0,51 pomorskie 0,50 małopolskie 0,48 podlaskie 0,44 wielkopolskie 0,42
0,20 ≤ S < 0,40 poor (D)	opolskie 0,39 świętokrzyskie 0,38 lubuskie 0,33	zachodniopomorskie 0,39 podkarpackie 0,36 lubelskie 0,33 lubuskie 0,32 świętokrzyskie 0,26 warmińsko-mazurskie 0,25 podlaskie 0,23	małopolskie 0,39 zachodniopomorskie 0,38 opolskie 0,36 kujawsko-pomorskie 0,34 świętokrzyskie 0,31 podkarpackie 0,29 podlaskie 0,29 lubuskie 0,26 lubelskie 0,24 warmińsko-mazurskie 0,24	łódzkie 0,39 lubelskie 0,39 podkarpackie 0,39 zachodniopomorskie 0,39 świętokrzyskie 0,38 kujawsko-pomorskie 0,34 warmińsko-mazurskie 0,25 opolskie 0,20
0,00 < S < 0,20 very poor (E)	-	-	-	lubuskie 0,17

Source: own authoring

Table 2. Transformations of synthetic index in the studied years

	2004/2003	2005/2004	2006/2005	2007/2006	2008/2007	2009/2008	2010/2009	2011/2010	2012/2011	2013/2012	2014/2013	changes +
Łódzkie	▼	▲	▲	▼	▲	▲	▼	▼	▼	▲	▼	5
Mazowieckie	—	▲	▲	▲	▼	▼	▼	▲	▼	▲	▼	4
Małopolskie	▼	▼	▲	▼	▲	▲	▼	▲	—	▼	▼	4
Śląskie	▼	▲	▲	▼	▼	▼	▼	▲	▲	▲	▼	5
Lubelskie	▼	▼	▼	▼	▲	▼	▲	▲	▼	▲	▲	5
Podkarpackie	▼	▼	▲	▼	▼	▼	▲	▲	▼	▲	▼	4
Podlaskie	▼	▼	▲	▼	▲	▲	▼	▲	▼	▲	▲	6
Świętokrzyskie	▼	▼	▲	—	▼	▲	▼	▲	▲	—	▼	4
Lubuskie	▼	▲	▼	▼	▼	▲	▼	▼	▼	▲	▼	3
Wielkopolskie	▲	▼	▼	▼	▼	▲	▼	▲	▼	▲	▼	4
Zachodniopomorskie	▼	▼	▼	▲	▼	▲	—	▲	▼	▲	▲	5
Dolnośląskie	▲	▼	▲	—	▼	▼	▲	▲	▲	▼	▼	5
Opolskie	▼	▲	▲	▼	▼	▲	▼	▼	▼	▲	▼	4
Kujawsko-Pomorskie	▼	▲	▼	▼	▼	▼	▲	▼	▼	▲	—	3
Pomorskie	▼	▲	▼	▲	▲	▼	▲	▲	▲	▼	▼	6
Warmińsko-Mazurskie	▼	▼	▼	▲	▼	▲	▲	▼	▲	▲	▼	5

▲ increase ▼ decrease — no changes Source: own authoring

Conclusions

Multi-faceted character of financial condition needs analysis of a large number of variables describing the phenomenon, which selection may have significant influence on the results achieved. At first the selected set of variables was verified in terms of substantial and statistical relevance. Then the indexes characterized by low changeability and high level of correlation were eliminated. Next particular variables were normalized and the synthetic index as built and the variables were grouped.

Financial condition refers to a financial state in a particular period of time, which is indicated by, inter alia, task performing, level of own revenues, subventions, subsidies, current and investment expenses.

Taking into account the value of synthetic measure of financial condition the situation of voivodeships in Poland is difficult. During the studied period of time the leading positions were held by śląskie (2003 – 0.66; 2005 – 0.61; 2010 – 0.48; 2014 -0.56) and mazowieckie (0.65; 0.74; 0.57; 0.57). At the end of the ranking were świętokrzyskie (0.38; 0.26; 0.31; 0.38), lubuskie (2003 – 0.33; 2014 – 0.17), podlaskie (2005 – 0.23), warmińsko-mazurskie (2010 – 0.24). The value of the measure fluctuated between: in 2003 – 0.66 and 0.33; 2005 – 0.74 and 0.23; 2010 – 0.58 and 0.24; 2014 – 0.57 and 0.17. In case of świętokrzyskie voivodeship the value of the index was at the level of 0.38; 0.26; 0.31; 0.38 (2003, 2005, 2010, 2014).

The financial resources are the basis of activity of territorial self-government units and a condition of realizing tasks entrusted to them, they determine the development and express economic development potential. The level of income (including own), subventions, subsidies, current and investment expenses have influence on the level of synthetic index of financial condition. Higher income potential of the units, the potential of expense concerns the voivodeships of western wall of Poland. In a poorer position are the voivodeships of the Eastern Wall.

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FINANCE REGION FOR SUSTAINABLE DEVELOPMENT. SYNTHETIC DESCRIPTION OF FINANCIAL CONDITION

S u m m a r y

The activity of local government affect the development of local economy. The finance are the basis of public tasks realization and decide on the conditions of unit's economic development. The aim of this article is to define and describe the synthetic index used to determine the level of financial condition of the voivodeships in Poland. The financial condition is illustrated by, inter alia, the ability to perform tasks, the level of revenues and the amount of expenditure and financial autonomy. Statistical research confirm the existence of disproportion in the area of financial condition of the voivodeships in Poland. In the studied period of time the leading positions were held by śląskie (2003 – 0.66; 2005 – 0.61; 2010 – 0.48; 2014 – 0.17) and mazowieckie voivodeship (0.65; 0.74; 0.57; 0.57). At the end of the ranking were świętokrzyskie (0.38; 0.26; 0.31; 0.38), lubuskie (2003 – 0.33; 2014 – 0.17), podlaskie (2005 – 0.23) and warminsko-mazurskie voivodeships (2010 – 0.24).

KEYWORDS: finance, development, revenues, expenditure, financial condition, synthetic index.

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VALUE ADDED AS A MEASURE OF PRODUCTION EFFICIENCY OF FARMS IN LATVIA IN THE EU CONTEXT

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Annotation
Efficient agricultural production is not only an essential prerequisite for successful development of rural territories and food processing industry but also an important factor in providing employment and stability of national economy. The creation of high value added by agrarian sector substantially contributes to the growth of economic prosperity of rural population. This study aims to explore the efficiency of Latvian agricultural production at micro (farm) level measured by value added in the context of selected EU member states. All the calculations were performed by the authors and were based on data for the years 2007-2013 which had been obtained from the public databases of Farm Accountancy Data Network and SUDAT. An examination of the proportion of farm net value added to annual work unit has revealed that the Baltic States still belong to the lowest ratio group compared with the EU average. Latvian field crops farms were in a particularly difficult economic situation. In comparison with the EU average, the ratio of farm net value added per 1 hectare of utilized agricultural area was the smallest in the EU. In Latvian dairy farms the ratio of farm net value added per 1 livestock unit to the EU average was much higher and achieved approximately 70 %. However, it still was not as high as for farms in neigbouring Baltic countries where the ratio was roughly the same as the EU average. Latvian farms also remained among the most heavily subsidized agricultural holdings in the EU. In agrarian sector the proportion of production subsidies in farm net value added was two times higher than the EU average. A growing dependence of farms on subsidies manifests deteriorating competitiveness of agrarian sector. This trend could be reversed by introducing innovative forms of production process, modernizing technology and learning from experience of other EU member states, particularly, of Scandinavian countries which have similar or even more adverse climate.
KEY WORDS: value added, farms, production efficiency, Latvia.

Introduction

Efficient agricultural production is not only an essential prerequisite for successful development of rural territories and food processing industry in Latvia and other EU member states but also an important factor in providing employment and stability of national economy (Svarinska 2008). The creation of high value added by agriculture substantially contributes to the growth of economic prosperity of rural population (Kilkenny et al. 2001). The Common Agricultural Policy of the EU (hereinafter - CAP) plays a major part in this process. To implement the CAP effectively the European Commission needs detailed statistical information on the economic situation in the agrarian sector. Statistical data on the income and production efficiency of farmers are of paramount importance because they shed light upon and provide an opportunity for monitoring the actual performance of the sector.

The study aims at exploring the efficiency of Latvian agricultural production at micro (farm) level measured by value added in the context of selected EU member states. The following research tasks have been formulated:

1) to outline the merits and drawbacks of value added as an economic indicator;

2) to examine the role played by subsidies in the efficiency of production at micro (farm) level;

3) to spot the position of Latvian farms across farms in selected EU member states with regard to production efficiency and the dependence on state support.

The object of research is value added as a measure of agricultural production in Latvia at micro (farm) level. To accomplish the undertaken tasks several research methods such as monographic, systematic, statistical and logical abstraction have been employed.

In this study, an analysis of data for the years 2007-2013 has been carried out. Two main reasons have determined the choice of this time span. Firstly, is coincides with the period of the Rural Development Programme for Latvia (2007-2013) - the most important document which establishes the focus areas and top priorities of agricultural development and production. Secondly, most scholars (Špoģis et al. 2007; Vēveris et al. 2007; Buģina et al. 2008; Bratka et al. 2009; Vēveris 2009) based their analysis of value added of Latvian farms on data for the years preceding the given period. Therefore, the period under current study had not been explored. Although some papers (Братка et al. 2010; Братка et al. 2012) also used data for a few years following the year 2007, these papers focused solely on the comparison of value added between Latvian farms of different specialization without analysis in the context of the EU. Consequently, the novelty of this study is the examination of value added of Latvian farms during the years 2007-2013 in the context of other EU member states, filling the gap in literature and adding to the current body of knowledge. The selection of EU member states for comparison was determined by the availability of required data in a public database.

All the calculations were performed by the authors and were based on data obtained from the public databases of FADN (*Farm Accountancy Data Network*) [1] and SUDAT [2] (*Saimniecību uzskaites datu tīkls*). The latter is developed, maintained and updated by the Latvian State Institute of Agrarian Economics which is a national liaison agency for FADN in Latvia. Established in 1965, FADN is the EU system of sample annual surveys which are carried out by liaison agencies to monitor agricultural sector and to assess the impact of the CAP. Farms exceeding the threshold set for each member state participate in the survey aiming at a possibly comprehensive representation of agricultural output, area and labour force of market oriented holdings. FADN helps the European Commission to assess the economic situation at microeconomic level. This network successfully complements the Economic Accounts for Agriculture prepared within the framework of national accounts by Eurostat and give valuable insight into agricultural production from a macroeconomic perspective (Hill 1991).

Value added as a measure of production efficiency

Value added is a significant and widely spread measure of productivity and efficiency (Hedderwick 1988; Richard 1989; Riahi-Belkaoui 1996, 1999). Despite Christensen's (1975) opinion that the use of comprehensive measures based on such general ratios as output per worker or yield per 1 ha could yield misleading results, value added for several decades was used as a crucially important indicator of farm working efficiency (Hayami 1970; Borchert 1983). An increase in value added is considered a sign of innovative development both at enterprise and national economy level (Boland 2009). It is maintained that agriculture focused on creating high value added is more efficient in promoting sustainable development, raising the level of wellbeing and quality of life (Kilkenny 2001). Moreover, Nakamoto (1996) emphasizes the necessity to analyze the value added created exclusively by agricultural sector of national economy.

Historically, the contribution of agriculture was measured by net farm income [3]. When this approach was developed after the Second World War, farm operators and their families owned an overwhelming majority of production factors. Therefore, payments to suppliers of some factors were ascribed to production expenses. Over the years, the situation changed dramatically in large farms where a large proportion of land, labour force and capital were owned by non-owners of the business. Some scholars highlighted this trend. For example, Schertz (1982) recognized an increasing heterogeneity in the structure, ownership and use of farm production factors and supported a new concept of separation of production factor owners and users which replaced a previous model of individually controlled farms. According to Poppe et.al. (2004), this process of increasing complexity of farming practices and relations in Western Europe is still underway.

Limited available information for statistical purposes was another reason for the growing popularity of value added. Between the years 1978 – 1982 'labour income per unit of labour' was considered the main income indicator within FADN framework. However, at initial stages of the development of FADN system some EU member states could not obtain reliable information about farmers' expenses on some production factors, especially interest payments (Hill 2012). As the calculation of labour income involved the deduction of costs for land and working capital, real or imputed, their validity was questioned and severely criticized by both the European Commission and independent experts (Hill 1991). Thus, there was urgent need for developing an alternative measure. As a result of a major revision of the range of FADN indicators in 1982, a new indicator – 'farm net value added' (FNVA) per holding and per annual work unit (AWU)[4] - was introduced.

It is a more precise measure of the farm sector's total output because it better reflects the contribution of all production factors regardless of the form of ownership (Erickson et. al. 2002; Johnson et. al 2007, Vēveris 2009). FNVA shows benefits received by the owners of all the production factors such as land, capital, entrepreneurial skills and labour force which consists of paid hired and unpaid family labour inputs. Therefore, it is a "hybrid of rewards" (Hill 1991: 11) and gives analysts an opportunity to dissect it according to different classifications by function and ownership.

Doubtlessly, FNVA offered an optimal solution to the problem as its calculation did not require knowledge of a full set of expenses (Hill 2012). This new indicator replaced its predecessor 'labour income' and soon was acknowledged as one of the main measures of farm performance. At present, net value added is widely used as a fundamental concept of major income indicators in the agrarian sector both at aggregate (Eurostat) and enterprise (FADN) levels. Yet, FNVA does have a dark side too. It cannot be used as a proxy of the total income of farmers as it disregards other sources of income (Hill 1991).

Relative simplicity of FNVA is mentioned as its main advantage (EU Farm… 2013, 2014). Despite its obvious attractiveness, FNVA per holding suffers from serious drawbacks. This indicator might be useful for analyzing the concentration and structure of agricultural production as it shows the amount of value added created by farms of particular size. Nevertheless, interchangeable production factors are one of the main reasons for judging critically the use of this indicator for other purposes. Substitution

[1] http://ec.europa.eu/agriculture/ricaprod/database/database_en.cfm

[2] https://sudat.lvaei.lv/Login.aspx?ReturnUrl=%2fdefault.aspx

[3] Froněk et al. (2007) have developed a scoring model for farms which consists of such variables as net income (profit/loss), value added, operational assets and investment. Despite widely held opinion of net income as a primary indicator of farm overall performance, it has been proved that value added outperforms net income and is more appropriate for classifying agricultural holdings according to their performance. However, the results of the study carried out by Chrastinova (2008) have revealed the correlation between value added and an economic performance of agricultural cooperatives. No such correlation was found in business agricultural holdings.

[4] Annual work unit (AWU) is the work performed by a person who is occupied on a farm on a full-time basis. 1 AWU is equal to 1800 hours or 225 working days of 8 hours each.

of on-farm inputs for purchased inputs, for instance, family labour for purchased fuel or land for manufactured fertilizers, might result in similar final outputs and different FNVA. For this reason, FNVA per AWU seen as a measure of partial labour productivity (EU Farm… 2013, 2014) or per other single production factor such as agricultural land measured in hectares could be preferable indicators. However, their interpretation might be even more problematic and come under attack because FNVA is the result of using a mix of production factors instead of the result of any separate factor such as labour (annual work units), land (hectares) or capital. Consequently, the proportion of FNVA and any single factor is also questionable (Hill 1991).

Although definitions of the value added differ (Ekonomikas… 2000; Shim et.al. 2001; Black et.al. 2012), the algorithm of its calculation is similar. The United Nations System of National Accounts (System 2009), Farm Accountancy Data Network methodology (Lauku… 2008) and scholars (Hill 2012) suggest that the value added can be found as the difference between the value of farm output and the variable inputs purchased from other sectors of the economy after adjustment for changes in the stocks of products and inputs as well as subsidies and taxes on production. To calculate FNVA further adjustments for the consumption of capital (depreciation) should be made.

The ratio of FNVA to the consumption of labour is one of the most popular economic analytical indicators of farm labour efficiency, used by numerous scholars (Špoģis et al. 2007; Vēveris et al. 2007; Buģina et al. 2008; Střeleček et al. 2009a; Vēveris 2009). Net value added is the industry level indicator. Thus, according to the interpretation of the purpose of Article 39 of the Treaty of Rome as relating to all people working in agriculture (employed, self-employed, and family help) no distinction between farmer's labour and hired labour is made when the ratio "FNVA per AWU" is calculated (Hill 2012). According to another explanation (Hill 1991), no distinction is made because the purpose of the CAP is to give benefits to everyone who is employed in the agrarian sector irrespective of their status. However, serious flaws are concealed because these explanations successfully mix sectors of hired and family labour whose principles of remuneration are completely different. While in the former reward is the only type of remuneration, in the latter it is the combination of various factors with diverse levels of risk.

The role of subsidies in agrarian sector

Recently, the issue of subsidies in general and agricultural subsidies in particular has assumed considerable significance and attracted a lot of attention of policy makers, scholars, analysts and farmers. Subsidies are a public financial contribution which is made to achieve a financial balance of a receiving organization without specifying the purpose (Sedláček 2012). For Rutherford (2002), subsidy is a payment made by the government to a company or a household in order to reduce the cost of used labour or capital. Generally, agricultural subsidies play a crucial role in stimulating the development of any country by facilitating agricultural production, employment and investment. In agriculture, subsidies are justified by the necessity of maintaining sustainable use of land, preserving the landscape and viable systems of agricultural production in less-favourable regions, and supporting rural population. Thus, Dibrova et al. (2009) make a valid point arguing that the need to support agrarian sector is determined by several factors including the particularities of agriculture as one of national economy sectors and its importance to food self-provision of the state as well as by the susceptibility of this sector both to adverse climate conditions and volatility of commodity markets. The rationale of subsiding agriculture in developing countries stems from either stimulating agricultural development or protecting the meager incomes of some vulnerable cultivators, who may not have the risk bearing capacity. Nevertheless, in developed countries, usually subsidies to farmers are paid to keep them "in parity" with non-farming communities.

For V. Karpik (Karpik 2006), there are the following types of state support for agriculture: indirect support (preferential crediting, taxation, other indirect subsidies) and direct support (grants, favorable loans etc.). Gulati et. al. (1995) offer a different classification. First, the government can pay a much higher price for agricultural products compared with a price farmers are offered in free market. Second, vitally important inputs such as irrigation water, electricity, fuel, investments in assets can be subsidized. Of these two alternatives, the latter is normally preferred because it is believed that benefits of government expenditures can be derived by the farmers only proportionally to their use of inputs. It is also argued that incentives like subsidies are not supposed to be substitutes for long-term measures, for example, new agro-technology (Gulati et al. 1998). Consequently, subsidies on inputs are usually justified as temporary measures which could be withdrawn once the objectives have been achieved. But the past experience clearly shows that reduction in or cancellation of subsidies is an extremely difficult political decision.

A comparative analysis of value added in Latvia's context

Viira et al. (2011) have highlighted the importance of taking into consideration the subsidies to perform more detailed analysis of FNVA. As a result, production NVA, which is equal to FNVA minus production subsidies, can be calculated. In comparison with FNVA, production NVA provides a valuable and more realistic insight into the potential of farms to create additional value without any financial support from the state. Previously, production NVA of farms in Latvia has been analyzed by Špoģis et al. (2007). However, this measure is not the only one suggested by scholars. An alternative indicator for the analysis of dependence of farms on state support was proposed by Lososová (2013). It is a subsidy index, is equal to the ratio of costs to revenues after the deduction of subsidies.

During the period from 2007 to 2013 the highest FNVA per 1 AWU was created by fieldcrop and granivore farms whereas the lowest one - by mixed livestock and mixed cropping farms (Table 1 and 2). A

low proportion of production NVA definitely shows that farms of some specialization, namely, mixed livestock, mixed crops and livestock, fieldcrops and dairying, were able to generate FNVA mostly owing to state support received. In some years the situation was even more unfavourable because subsidies exceeded FNVA and consequently resulted in a negative production NVA. In case of changes in agricultural policy or suspended support payments the farms which are excessively dependent on state support would bankrupt.

Table 1. FNVA and the proportion of production NVA in FNVA created by livestock farming and granivore farms in Latvia in 2007-2013 (LVL)

Type of farming	Ratio	2007	2008	2009	2010	2011	2012	2013	Average
Dairying	FNVA per 1 AWU	5225	4646	3720	4426	4676	4684	5079	4637
	Prod. NVA / FNVA	0,29	0,14	-0,20	0,13	0,23	0,22	0,24	0,15
Mixed livestock	FNVA per 1 AWU	3473	2779	2626	3038	3114	2751	3033	2973
	Prod. NVA / FNVA	0,26	-0,19	-0,08	0,08	-0,05	0,11	0,03	0,02
Mixed crops and livestock	FNVA per 1 AWU	4576	4290	3846	4460	5567	5476	4502	4674
	Prod. NVA / FNVA	0,32	0,11	-0,12	0,03	0,12	0,16	0,13	0,11
Granivores	FNVA per 1 AWU	7158	7764	10969	9157	7373	12250	17836	10358
	Prod. NVA / FNVA	0,60	0,58	0,82	0,59	0,45	0,55	0,55	0,59

Table 2. FNVA and the proportion of production NVA in FNVA created by crop farming and horticulture farms in Latvia in 2007-2013 (LVL)

Type of farming	Ratio	2007	2008	2009	2010	2011	2012	2013	Average
Fieldcrops	FNVA per 1 AWU	10837	10170	4448	7318	7824	13561	8073	8890
	Prod. NVA / FNVA	0,41	0,13	-0,60	-0,11	0,12	0,55	0,25	0,11
Mixed cropping	FNVA per 1 AWU	3299	3308	2858	2893	3046	4718	3941	3438
	Prod. NVA / FNVA	0,44	0,44	0,26	0,27	0,27	0,29	0,40	0,34
Horticulture	FNVA per 1 AWU	2561	2969	4134	5484	5375	5053	6088	4524
	Prod. NVA / FNVA	0,93	0,90	0,94	0,96	0,97	0,97	0,99	0,95
Permanent crops	FNVA per 1 AWU	4632	5421	3905	2530	3148	4406	4544	4084
	Prod. NVA / FNVA	0,58	0,67	0,48	-0,33	0,37	0,14	0,06	0,28

In addition to the measures shown in Tables 1 and 2, Špoģis et al. (2007) suggest that the proportion of FNVA in farm production income is also explored (Table 3). Production income consists of the amount earned by farms themselves (total output) and the amount allocated by the state as support payments (production subsidies).

Table 3. The proportion of FNVA in farm production income in Latvia in 2007-2013 (in percent)

Type of farming	2007	2008	2009	2010	2011	2012	2013	Average
Dairying	33	28	27	29	28	27	27	28
Fieldcrops	36	30	18	24	23	32	23	27
Mixed livestock	34	26	29	31	26	28	31	29
Mixed crops and livestock	36	31	29	30	32	30	27	31
Mixed cropping	39	44	37	31	39	40	39	38
Horticulture	25	26	30	34	29	20	21	26
Permanent crops	55	50	52	28	38	35	35	42
Granivores	21	18	24	21	14	20	21	20

In the years 2007 – 2013 the highest percentage of FNVA was generated by farms whose specialization was permanent crops and mixed cropping while granivores showed the lowest one. However, these results should be interpreted cautiously. In contrast to production NVA, they do not give a direct answer to the question about farms' ability to operate without state support. Rather, these results provide an alternative perspective and describe FNVA in relation to the most important sources of farm revenues (output and production subsidies). Consequently, it makes possible to bring another analytical dimension to the comparison of farms of different specialization.

A comparative analysis of value added in the EU context

Nowadays, the value added approach is accepted and used internationally. Data on value added provide additional information both on farms at microlevel and

the agricultural sector at macrolevel. This kind of data could also be used in microlevel analysis to find out the distributional implications of agricultural policy (Offut 2002; Grznár et al. 2004). In addition, they give a useful insight into the organizational and operational structure of farms as revealed by stakeholder payments. Data on value added could be an important source of information for making comparisons both between farms with a different organizational and legal structure (family farms, limited companies, cooperatives etc.) and between countries with a different structure of farms (Johnson et al. 2007; Definitions… 2011).

In this study, the indicators of the value added of Latvian farms are analyzed in comparison with selected EU member states for which the necessary information was available in the public FADN database. The results of the current study support earlier conclusions about significant disparities between FNVA across different members of the EU (EU Farm… 2013, 2014).

A comparative analysis of the proportion of FNVA to AWU (Table 4) shows that EU farms could be divided into three groups. Over the period of six years from 2007 to 2012 the majority of new member states (the Baltic States, Cyprus, Malta, Poland, Slovenia and Slovakia) and Greece and Portugal as old member states achieved the lowest ratio compared with the EU average. While farms in Austria, the Czech Republic and Hungary had approximately the same ratio as the EU average, the ratio in the remaining member states significantly exceeded the average level.

Table 4. The ratio of FNVA per annual work unit to the EU average in some EU member states in 2007-2012

Member state	2007	2009	2011	2012	Member state	2007	2009	2011	2012
BEL	2,80	2,41	2,07	2,27	LUX	2,65	1,76	2,21	1,86
CYP	0,59	0,66	0,60	0,49	LVA	0,52	0,45	0,41	0,51
CZE	0,90	0,83	1,06	1,04	MLT	0,85	0,54	0,32	0,39
DAN	3,98	3,21	4,69	5,16	NED	2,95	2,85	2,52	2,89
DEU	2,33	1,98	1,94	2,17	OST	1,57	1,38	1,28	1,19
ELL	0,88	0,89	0,68	0,64	POL	0,44	0,36	0,41	0,39
ESP	1,56	1,36	1,13	1,06	POR	0,50	0,64	0,51	0,50
EST	0,87	0,66	0,93	1,02	SUO	1,73	1,51	1,45	1,43
FRA	2,27	1,68	2,06	2,01	SVE	2,22	1,45	1,91	1,96
HUN	0,89	0,74	1,10	1,05	SVK	0,53	0,18	0,62	0,54
IRE	1,51	1,08	1,41	1,25	SVN	0,29	0,32	0,28	0,21
ITA	1,51	1,68	1,23	1,20	UKI	2,68	2,35	2,45	2,08
LTU	0,62	0,46	0,48	0,54	*EU average (EUR)*	*15165*	*13583*	*18203*	*18962*

However, Lal (1999) has pointed to some limitations as differences in national methodology for calculating value added could decrease an international comparability of results. Various depreciation rates used in different EU member states are a case in point (Bašek et al. 2011). Grznár et al. (2004) emphasize that value added depends not only on the efficient use of purchased inputs but also on climate and other natural conditions, quality of soil, management and the structure of production process in agricultural holdings. All of them might vary widely. For instance, Michaličkova et al. (2014) has identified the influence of the farm structure on labour productivity. In most regions of Central and Eastern Europe the average size of farms is small, the level of mechanization is low and a significant part of output is used for consumption. The orientation of agricultural sector in Malta and Slovenia to less productive types of farming, namely mixed cropping and other permanent crops, has been mentioned as one of potential reasons for particularly low ratios (EU Farm… 2014).

The CAP aims to maintain or increase the total revenues of farms by using instruments such as direct payments within the first pillar and different types of subsidies within the second pillar of the CAP. In addition to influencing the total revenues, these instruments have a profound impact on the level of agricultural production and expenses, prices and structure of agrarian sector (Malá et al. 2011). A number of scholars (Střeleček et al. 2003; Bielik et al. 2006; Hrabalová et al. 2006; Střeleček et al. 2010) have underlined the crucial role played by subsidies and the dependence of farms on them. In some countries this subsidy dependence becomes a universal phenomenon. For instance, Chrastinová et al. (2009) have reported that an average Czech farm is not able to make profit if no subsidies are received. Similarly, von Witzke et al. (2006) are deeply pessimistic and have concluded that without such type of subsidies as direct payments the majority of German agricultural holdings (legal entities) would run at a loss.

It is also stressed that different amounts of subsidies allocated to farms according to their type of farming could influence or even determine the type of farming because subsidizing stimulates the production of some agricultural commodities and suppresses the production of others. As a result, subsidies distort the production structure and diverge it from the pattern of demand. Thus, subsidies could simultaneously be the cause and the result of the type of farming. In addition, there is an opinion that a low proportion of subsidies in revenues could be devastating and undermine competitiveness because farms do not have enough financial resources to regularly renew and modernize assets (Střeleček et al. 2009b). Špička et al. (2009) show that production subsidies exercise direct influence on the amount of farm revenues and act as a 'financial cushion' reducing the volatility of

revenues. This mitigating factor is particularly important to crop farming, heavily dependent on weather conditions and, consequently, on volatile market prices.

On the whole, the proportion of subsidies in farm revenues in old EU member states was lower compared with the proportion in the new member states (EU Farm… 2014). Our calculations concur with this conclusion (Table 5).

Table 5. The proportion of production subsidies in FNVA created by farms in some EU member states in 2007-2012 (in percent)

Member state	2007	2009	2011	2012	Member state	2007	2009	2011	2012
BEL	28	36	31	28	LUX	63	109	75	80
CYP	33	35	24	36	LVA	68	113	89	67
CZE	61	101	65	64	MLT	45	35	34	28
DAN	36	48	26	22	NED	14	18	16	14
DEU	41	59	46	38	OST	51	75	55	57
ELL	38	45	46	47	POL	34	62	46	44
ESP	20	35	35	34	POR	44	47	44	45
EST	49	94	70	63	SUO	125	177	144	143
FRA	44	65	41	40	SVE	69	121	81	73
HUN	51	77	51	48	SVK	97	477	95	101
IRE	77	116	65	74	SVN	78	111	92	125
ITA	17	21	22	22	UKI	52	63	44	48
LTU	40	77	53	49	*EU average*	*36*	*49*	*39*	*38*

The agrarian sector was most heavily subsidized in Slovakia, Finland, Slovenia and Sweden. Almost 10 years ago scholars already emphasized the great dependence of Latvian farms on state support and found that the proportion of production subsidies in FNVA had been higher in comparison with the average level in other EU member states (Vēveris et al. 2007). The situation has not improved and the proportion of production subsidies in FNVA of Latvian farms is still two times higher than the EU average. It was also 5.5 times higher than in the Netherlands – a country with the smallest percentage of production subsidies in FNVA. This small percentage could be explained by the focus of Dutch agriculture on highly profitable and less supported sectors such as horticulture and granivores (EU Farm… 2014).

According to the data of the latest Census of Agriculture, conducted in Latvia in 2013, 46 % of all economically active farms were field crops farms and 16 % - dairy farms [5]. Therefore, these specializations are the most popular among agricultural holdings in Latvia and have been chosen by authors for a further detailed analysis of FNVA indicators.

The ratio of FNVA per 1 hectare of utilized agricultural area (Bašek et al. 2011) and the ratio of value added per 1 hectare of utilized agricultural area (Trnková et al. 2012) are a popular alternative to a common ratio of FNVA per 1 AWU. In comparison with the EU average, the ratio of FNVA per 1 hectare of utilized agricultural area in the Baltic States was the lowest in the EU (Table 6).

Among the Baltic States Latvia yielded the worst results. The results achieved by an overwhelming majority of other new member states were much more positive. For example, the ratio for Slovenian farms was about 1.5 times higher than the EU average whereas for Polish farms it was approximately 80 % of the EU average. Even the ratio for Finnish field crops farms was higher than that for the Baltic States despite a well-known fact that in this northern Scandinavian country adverse climate conditions might transform an agricultural production process into an arduous task.

Contrary to the situation in field crops farms, the ratio of FNVA per 1 livestock unit to the EU average in Latvian dairy farms was considerably higher and achieved approximately 70 % (Table 7). Although it was a much better result than in Malta and Slovakia, this ratio still was not as high as for farms in neigbouring Baltic countries where the ratio was roughly the same as the EU average. Belgian, German and Danish farms reached similar results. Miglavs et al. (2007) maintain that the highly fragmented structure of Latvian milk producing farms is one of the main reasons for a relatively low FNVA in the dairy sector. The increase in its concentration and specialization could have a positive influence on the growth of FNVA (Krieviņa 2009). Another proposal is the introduction of employees' motivation schemes which might help achieve a higher labour productivity (Michaličková et al. 2013).

Conclusions

Value added has been recognized as a significant and widespread measure of productivity and efficiency. Its increase is considered a sign of innovative development both at enterprise and national economy level. Although historically the contribution of agriculture was measured by net farm income, a continuous increase in the proportion of land, labour force and capital owned by non-owners of the business as well as limitations of

[5] http://data.csb.gov.lv/pxweb/lv/lauks/lauks__ikgad__laukstrukt_13__1.visp/LSS13_I07.px/?rxid=cdcb978c-22b0-416a-aacc-aa650d3e2ce0

available information for statistical purposes were the main reason for the rising popularity of value added as an alternative measure. Farm net value added is one of economic indicators derived from value added.

Table 6. The ratio of FNVA per 1 ha of utilized agricultural area to the EU average in field crops farms in some EU member states in 2007 – 2012

Member state	2007	2009	2011	2012	Member state	2007	2009	2011	2012
BEL	1,90	2,13	1,91	2,12	LVA	0,36	0,26	0,25	0,42
CZE	0,62	0,60	0,75	0,73	MLT	5,46	5,07	4,68	3,28
DAN	1,39	1,63	2,19	2,46	NED	3,02	4,54	2,48	3,98
DEU	1,08	1,24	1,09	1,40	OST	1,37	1,42	1,63	1,45
ESP	0,81	0,77	0,74	0,63	POL	0,80	0,76	0,81	0,84
EST	0,43	0,21	0,33	0,39	POR	0,71	1,46	0,92	1,06
FRA	1,07	0,82	1,13	1,21	SUO	0,68	0,30	0,45	0,41
HUN	0,56	0,55	0,83	0,74	SVE	0,84	0,53	0,79	0,80
IRE	1,60	0,87	1,22	0,92	SVK	0,43	0,15	0,59	0,51
ITA	2,03	2,36	1,69	1,50	SVN	1,58	2,71	1,10	0,79
LTU	0,57	0,40	0,44	0,56	UKI	1,05	0,97	1,07	1,01

Table 7. The ratio of FNVA per 1 livestock unit to the EU average in dairy farms in some EU member states in 2007 – 2012

Member state	2007	2009	2011	2012	Member state	2007	2009	2011	2012
BEL	1,18	1,03	0,96	0,86	LVA	0,67	0,73	0,63	0,73
CZE	0,87	1,07	1,22	1,40	MLT	0,52	0,52	0,46	0,53
DAN	1,16	0,74	1,08	1,12	NED	1,25	0,95	1,24	1,22
DEU	1,15	1,05	0,95	1,02	OST	1,50	1,73	1,42	1,46
ESP	1,38	1,43	0,91	0,78	POL	0,88	0,71	0,96	0,91
EST	0,96	0,87	1,02	1,07	POR	0,74	1,09	0,77	0,85
FRA	0,73	0,64	0,79	0,78	SUO	1,34	2,01	1,40	1,76
HUN	0,89	1,03	1,34	1,39	SVE	0,86	0,80	0,97	0,87
IRE	0,79	0,63	0,90	0,75	SVK	0,56	0,18	0,46	0,71
ITA	1,41	2,03	1,62	1,67	SVN	0,70	0,79	0,65	0,70
LTU	0,88	0,95	0,88	0,88	UKI	0,76	0,81	0,77	0,71

It is a more precise measure of the farm sector's total output because it better reflects the contribution of all production factors regardless of the form of ownership. However, FNVA cannot be used as a proxy of the total income of farmers as it disregards other sources of income.

Generally, agricultural subsidies play a crucial role in stimulating the development of any country by facilitating agricultural production, employment and investment. In agriculture, subsidies are justified by the necessity of maintaining the sustainable use of land, preserving the landscape and viable systems of agricultural production in less-favourable regions, and supporting rural population. In addition to influencing the total revenues, subsidies have a profound impact on the level of agricultural production and expenses, prices and structure of agrarian sector because they stimulate the production of some agricultural commodities and suppress the production of others. As a result, subsidies distort the production structure and diverge it from the pattern of demand. In some countries the dependence of farms on subsidies becomes a universal phenomenon.

A comparison of Latvia and the EU member states by Vēveris et al. (2007) revealed that Latvia could be ranked among countries with the highest intermediate consumption and a low level of production efficiency (value added per AWU). Although almost 10 years have passed since this comparison was made, the results of this study show that the situation has not improved.

An examination of the proportion of FNVA to AWU shows that the Baltic States still belonged to the group of member states with the lowest ratio compared with the EU average. Field crops farms were in a particularly difficult economic situation. In comparison to the EU average, the ratio of FNVA per 1 hectare of utilized agricultural area in the Baltic States was the lowest in the EU. From among the Baltic States Latvia yielded the worst results. Unlike the poor results obtained by field crops farms, the ratio of FNVA per 1 livestock unit to the EU average in Latvian dairy farms was much higher and achieved approximately 70 %. Although it was a better result than that of Malta and Slovakia, this ratio still was lower for farms in neigbouring Baltic countries where the ratio was roughly the same as the EU average. Latvian farms remained among the most heavily subsidized

agricultural holdings in the EU. In Latvian agrarian sector the proportion of production subsidies in FNVA was still two times higher than the EU average. Moreover, it was also 5.5 times higher than in the Netherlands – a country with the smallest percentage of production subsidies in FNVA.

In Latvia over the period from 2007 to 2013 the highest FNVA per 1 AWU was created by fieldcrop and granivore farms while the lowest was created by mixed livestock and mixed cropping farms. A low proportion of production NVA undoubtedly points out that farms of some specialization, namely, mixed livestock, mixed crops and livestock, fieldcrops and dairying, were able to generate FNVA mostly owing to received state support.

If in the first years after the accession of Latvia to the EU there were relatively low wages and land costs, their continuous growth is believed to undermine the competitiveness of agricultural production in Latvia in the future. Thus, Ševčiková (2003) is right about disparity in input and output prices as another reason for declining value added in agricultural sector. A lack of modern technologies is also posed as an important problem. Although the implementation of SAPARD program helped to modernize agriculture and related food processing sectors, the growth of production efficiency was not sufficient to achieve even the EU average (Vēveris et al. 2007). Moreover, sometimes resources were spent without maximizing their potential contribution to the growth of production efficiency in agriculture (Vēveris 2009).

In a market economy a growing dependence of farms on subsidies manifests deteriorating competitiveness of agrarian sector. Farms could reverse this trend and increase production NVA by introducing innovative forms of production process, modernizing technology and using the experience of other EU member states, particularly, of Scandinavian countries with their similar or even harsher climate. In practice, the following actions at micro- and macroeconomic level might be taken.

Small farms merge and establish cooperatives.

A flexible system of taxation is created and special tax allowances are granted to those farms which operate in priority fields of agrarian sector.

Additional financial resources are allocated for further modernization and renovation of farm production equipment.

The system of leasing of agricultural equipment is improved and state guarantee to promote the investment attractiveness of agrarian sector is provided.

A further reduction of administrative burden and adoption of new approaches to entrepreneurship and human resources management based on the principles of knowledge society.

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VALUE ADDED AS A MEASURE OF PRODUCTION EFFIECIENCY OF FARMS IN LATVIA IN THE EU CONTEXT

S u m m a r y

This study aims at exploring the efficiency of Latvian agricultural production at micro (farm) level measured by value added in the context of selected EU member states. All the calculations were performed by the authors and were based on data for the years 2007-2013 obtained from the public databases of Farm Accountancy Data Network and SUDAT (*Saimniecību uzskaites datu tīkls*).

Value added is a significant and widespread measure of productivity and efficiency. Although historically the contribution of agriculture was measured by net farm income, a continuous increase in the proportion of land, labour force and capital owned by non-owners of the business as well as limited available information for statistical purposes were the main reason for the rising popularity of value added as an alternative measure. Farm net value added is one of economic indicators derived from value added. It is a more precise measure of the farm sector's total output because it better reflects the contribution of all production factors regardless of the form of ownership. Nevertheless, FNVA cannot be used as a proxy of the total income of farmers as it disregards other sources of income.

Generally, agricultural subsidies play a crucial role in stimulating the development of any country by facilitating agricultural production, employment and investment. In addition to influencing the total revenues, subsidies have a profound impact on the level of agricultural production and expenses, prices and structure of agrarian sector because they stimulate the production of some agricultural commodities and suppress the production of others. As a result, subsidies distort the production structure and diverge it from the pattern of demand. In some countries the dependence of farms on subsidies becomes a universal phenomenon.

An examination of the proportion of FNVA to AWU showed that the Baltic States still belong to the group of member states with the lowest ratio compared with the EU average. Field crops farms were in a particularly difficult economic situation. In comparison with the EU average, the ratio of FNVA per 1 hectare of utilized agricultural area in the Baltic States was the lowest in the EU. Among the Baltic States Latvia yielded the worst results. Unlike to the poor results obtained by field crops farms, the ratio of FNVA per 1 livestock unit to the EU average in Latvian dairy farms was much higher and achieved approximately 70 %. However, this ratio still was not as high as for farms in neigbouring Baltic countries where the ratio was roughly the same as the EU average. Latvian farms remained among the most heavily subsidized agricultural holdings in the EU. In the agrarian sector the proportion of production subsidies in FNVA was two times higher than the EU average.

In Latvia, over the period from 2007 to 2013 the highest FNVA per 1 AWU was created by fieldcrop and granivore farms. The lowest one was by mixed livestock and mixed cropping farms. A low proportion of production NVA definitely shows that farms of some specialization, namely, mixed livestock, mixed crops and livestock, fieldcrops and dairying, were able to generate FNVA mostly owing to state support received.

In a market economy a growing dependence of farms on subsidies manifests deteriorating competitiveness of agrarian sector. Farms could reverse this trend and increase production NVA by introducing innovative forms of production process, modernizing technology and using the experience of other EU member states, particularly, of Scandinavian countries with their similar or even harsher climate. In practice, numerous actions at micro- and macroeconomic level might be taken. For instance, the establishment of cooperatives, the creation of agriculture-friendly system of taxation and a further reduction in administrative burden, the allocation of additional financial resources to farms for renovation, an improved system of leasing of agricultural equipment, the adoption of new approaches based on the principles of knowledge society.

KEY WORDS: value added, farms, production efficiency, Latvia.

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ASPECTS OF STABLE DEVELOPMENT OF THE SHIPBUILDING BRANCH IN LATVIA

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Annotation
Nations living near the Baltic Sea have constructed fishing boats since ancient times, as well as large commercial vessels for trading along the sea routes. Therefore, even nowadays the marine industry – vessel/ship or other watercraft construction, repair and maintenance are the important element of the industry of the country. The number of permanent employees in this branch is larger than 2 thousands and the number of enterprises exceeds several tens. The important factor that influences vessel construction development is the necessity to decrease the vessel construction costs and to increase the operational efficiency due to the rise of fuel prices. It is a necessary condition for stable development of branch to constantly improve business with the aim to increase competitiveness and output of the "mechanisms" for management thereof. Object of study: Latvian branch of construction, maintenance and repair of marine vessels. The aim - to develop recommendations for a successful development of the industry in a global competition. The problem - the need to identify and provide the prerequisites for a successful development of the industry. The originality of the paper is that the peculiarities of operation of vessel construction branch in Latvia after the regain of independence were considered for the first time. Analysis of aspects providing successful development of Latvian traditional branch of vessel construction has been done and substantiated recommendations have been elaborated. The novelty is that the main obstacles, which hinder the development of the industry, are identified and analyzed. Furthermore, this paper offers methods of solving these problems. There is an acute problem of development and improvement of human capital, the training of professionals who are able to accept the achievements of science, technology and to promote an innovation-based development of companies. Innovation with the participation of highly qualified professionals is regarded as the main solution, which will ensure competitiveness and sustainable development of the industry. It is necessary to develop a state program for innovative development of Latvian traditional shipbuilding industry.
KEY WORDS: shipbuilding branch, competitiveness, mathematical modelling, innovation, human capital.

Introduction

Historically and geographically Latvia has always been a maritime state. Nations living near the Baltic Sea have constructed fishing boats since ancient times, as well as large commercial vessels for trading along the sea routes. Therefore, even nowadays the marine industry – vessel/ship or other watercraft construction, repair and maintenance are the important element of the industry of the country. The number of permanent employees in this branch is larger than 2 thousands and the number of enterprises exceeds several tens. During seasonal periods, usually in warm seasons, the number of employees working in marine industry rises by 3-4 times. During the world economic crisis from 2008 till 2010 in the back of the fall of production volume there was a slowdown in the development of maritime traffic and ship construction, large shipping companies refused procurements of new vessels. The market value of vessels significantly decreased.

During the economic recovery period there appeared a tendency for the need in vessels with qualitatively new performance parameters in respect to their functions, economical efficiency, ecological safety etc. The following requirements in respect to new vessels came to the foreground: flexibility and multitasking of the structural layout that satisfy the customer's requirements; no need for capital repair or other type of repair of the vessel within the whole period of operation; significant decrease (by 10 – 15%) of vessel construction costs and further operation thereof, etc. The main requirement at the vessel construction phase becomes the possibility, by using the advantages of automated computer modelling, to create a project, which fully corresponds to individual customer's requests, taking into account the future operation of the vessel. Powerful motives for development of technologies in the field of vessel design and construction are the requirements of national and international structures, marine registers and organisation responsible for vessel traffic safety, environmental protection and qualification of the crew and others that constantly become more severe. On the other hand, the important factor that influences vessel construction development is the necessity to decrease the vessel construction costs and to increase the operational efficiency due to the rise of fuel prices.

Nowadays the requirements in respect to vessel engine production, the operational efficiency and ecological qualities thereof, become stricter. Development of the branches relevant to vessel construction occurs at high rate: new materials for marine equipment, electronic devices, electro-technical equipment, vessel navigation computer systems and other equipment are produced. In the field of material science new technologies and materials are elaborated: composite, heat-insulating materials; titan, aluminium alloys, etc. The leading vessel construction enterprises start using brand new methods of vessel hull construction

minimising manual labour. A brand new method of corrosion protection (metallic coating) of vessels and maritime structures is introduced without using traditional protective coatings. The new generation robust, reliable and heat-insulated reservoirs are produced for transportation of liquefied natural gas.

Subject and relevance. The growth strategy of the developed countries is built taking into account the peculiarities of globalisation and intensification of competition. The economical systems for stable development should be regularly improved as well as increase the own competitiveness to successfully compete with the systems of other countries and regions.

Competitiveness of the branch is the ability of branch enterprises to produce competitive output that has certain advantages in comparison to the similar production in other countries. In the foreseeable future establishment of integrated, open world market of technologies, labour, services and products is not anticipated, whereas competition is becoming even more severe (Кастеллс 2000). It is thought that stable development of an economical system in the long view leads to higher rates of growth in comparison to other systems, which are in similar conditions. The inner structure of the system has to be adapted to the changing outdoor environment. Stable and reliable development of separate branches of economics and regions usually means high growth rates of GDP and other macroeconomic indicators of a country. This also increases the competiveness of these branches. Stable development of the system (a branch of economy) firstly means high growth rates of incomes that exceed average indicators in group of comparable branches. The growth can be of medium or long-term with possible short-term drops due to various reasons. It is a necessary condition for stable development to constantly improve business with the aim to increase competiveness and output of the "mechanisms" for management thereof.

An important condition of stable development of economic systems is admitted to be stimulation of introduction of new technologies, increase of the added value. This can be achieved by attracting wide range of investments, leading experience in management and innovations. The word "innovations" is usually understood as the final result in the form of a new or improved product in the market or in the form of a new or improved technological process in practice. In order to achieve the synergetic effect companies are usually consolidated or merged. At the micro-level the positive effect is achieved by horizontal links with production suppliers and buyers, improvement of finance management on the assumption of long-term interests of the firm and growth of capitalisation, but not the current profit. One of the main sources of improvement of economy branch competitiveness is development of human capital assets, constant training of employees. Already in the middle of the XX-th century the expenses for training and upgrading of skills were considered as investments into development of companies (Schultz 1963, Becker 1962). Nowadays, in the conditions of globalisation and critical need in innovations, the role of human capital assets significantly increased (Hudson 1993, Machlup 1994). This is proved by the models of endogenous economic growth (Romer 1990). In the end of the XX-th century the World Bank performed the monetary evaluations of the national wealth in world regions, highlighting three main components: human capital assets, natural capital and reproducible capital (main industrial and non-productive assets, circulating assets, household goods). It was computed that, for instance, in the North America the human capital assets make ¾, whereas in the Middle East they make 0,4 of the total national wealth. Ignoring the modern principles of creation and implementation of the human capital assets adjudges the economical system and the country to be outsider.

The computations of experts showed that development potential of modern economical systems depends mostly on two indicators: human capital assets and level of investment-innovation activities. The correlation coefficient showing dependency of development potential on the human capital assets is 0,65 – 0,70, whereas for the same dependency on investments and innovation – about 0,60. This correspond to moderate (average) strength of correlation relationship, the correlation dependency is quite significant to be taken into account.

The tasks of the paper are to assess the condition of the shipbuilding industry in Latvia and to explore the ways for improving the competitiveness of the industry. *The originality of the paper* is that the peculiarities of operation of vessel construction branch in Latvia after the regain of independence were considered for the first time. Analysis of aspects providing successful development of Latvian traditional branch of vessel construction has been done and substantiated recommendations have been elaborated. *Object of the research:* Latvian branch of construction, servicing, repair of vessels and other watercrafts. *Aim of the research:* analysis of the condition of the branch and elaboration of substantiated recommendations for increase of stability of development and competitiveness thereof in the conditions of global competition. *Methods of research:* analysis of statistical data, mathematical modelling, correlation and regression analysis.

Computations and analysis

In Latvia, the majority of businesses, more than 95%, are small and medium-sized enterprises. There are a few relatively large enterprises in the country. The shipbuilding industry is also mainly represented by small and medium-sized enterprises. There are only two relatively large shipbuilding companies: Riga Shipyard and Liepaja Tosmare Shipyard. Most companies are involved in the construction of sports boats and small recreational vessels. In different years, they accounted for 70%–85% of the total number of industry companies engaged in the construction of vessels and boats. Between 2005 and 2011, the total number of enterprises operating in the shipbuilding industry in Latvia increased despite the economic crisis of 2008–2010 (Fig. 1, Table 1).

In the paper, all computations were performed on the basis of the data provided by the Central Statistical Bureau of Latvia (Central…2014). Within the period specified above, quite the contrary, the number of persons employed in the industry decreased. The regression equations and graphs obtained in computations demonstrate this fact visually: the number of enterprises increases directly proportionally and the number of workers decreases inversely proportionally with the time. The determination coefficient R^2 and correlation

coefficient r are greater than 0. 85 and 0.93, respectively, in the cases referred to above. This indicates that these equations explain more than 85% and 93% of variation of the number of enterprises and workers in a given time period, which is quite a large variation. Consequently, the correlation coefficients r = 0.923 and r = - 0.966 demonstrate the strong power of correlation dependence of indicators under consideration on the time. The testing of the significance of obtained regression equations by the Fisher LSD (F-test) showed that in both cases the actual values $F_{act.}$ exceeded critical values $F_{crit.}$ (Table 1). The hypothesis H_0 on the insignificance of the equations is rejected; the equations are found to be reliable, statistically significant and can be used for practical conclusions.

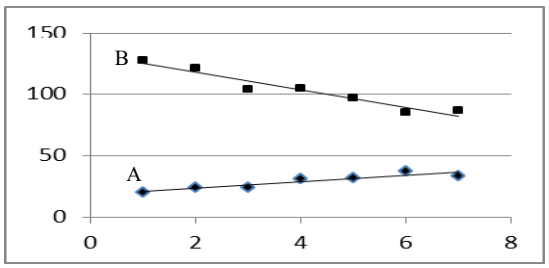

Fig. 1. Change in the number of enterprises and the number of permanent workers in the shipbuilding industry of Latvia, 2005 – 2011. A – the number of enterprises, B – the number of workers (× 10). The OX axis: 1 – 2005; 2 – 2006; ... 7 – 2011.

All dependences investigated in the paper are related to time series. Therefore, the regression equations obtained in computations were tested for autocorrelation of residuals of the first order by the Durbin–Watson (DW) test at the significance level $\alpha = 0.05$ (Table 1). In all cases, the DW statistic computations indicated the need for acceptance of the hypothesis H_0 $\rho = 0$ on the absence of autocorrelation. Only in the study on the dependence of number of workers in the shipbuilding industry on the employment rate in Latvia, the DW statistic falls into the area of uncertainty ($d_L < DW < d_U$)) (Fig. 4). However, the graphical analysis of residuals also showed the absence of autocorrelation.

The volume of sales of enterprises engaged in the repair and maintenance of vessels, boats and other watercraft was steadily increasing from 2000 to 2012 (Fig. 2, Table 1).

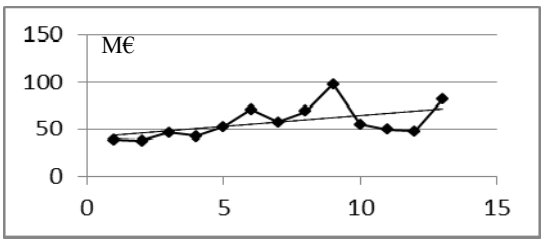

Fig. 2. The volume of sales: the repair and maintenance of ships and watercraft, 2000 – 2012. The OX axis: 1 – 2000; 2 – 2001; ... 13 – 2012.

The testing of significance of the computed regression equation by F-test showed that the statistics $F_{act.}$ was somewhat less than $F_{crit.}$. Therefore, the null hypothesis H_0 is not formally rejected, and the regression equation is not reliable enough. This can be explained by a relatively large variance of data (MS = 1065.7) and a small determination coefficient R^2. However, the obtained equation can be used as an indicator of general tendency towards changes. The correlation coefficient r = 0.53 demonstrates a moderate degree of dependence of factors; therefore, it should be taken into account. From 2009 to 2011 due to the crisis, there was a sharp decrease in the volumes of sales: they declined by more than two-fold in comparison with 2008. In 2012, the volume of sales almost returned to its previous level. This indicates a high sensitivity of the shipbuilding industry of Latvia to fluctuations in the global economic indicators.

The period of 2005–2010 was characterized by the fact that the investment in tangible assets for the repair and maintenance of vessels in the industry enterprises mainly decreased (Fig. 3, Table 1). Some increase in investment was observed before the economic crisis from 2006 to 2008, and then in the period of crisis investment fell sharply. To ensure the successful development of this business area, after the crisis it is necessary to increase investment in the acquisition of modern technologies and equipment – there is a need for innovation. The testing of the statistical significance of the obtained regression equation by the F-test showed that $F_{act.}$ was somewhat less than $F_{crit.}$, and the null hypothesis H_0 on the insignificance of equation could not be formally rejected. Taking into account a sufficiently large value of the determination coefficient R^2 and a high degree of correlation dependence (r = - 0.811), the obtained equation can be used as a general indicator of the tendency of changes in investment in the specified time period.

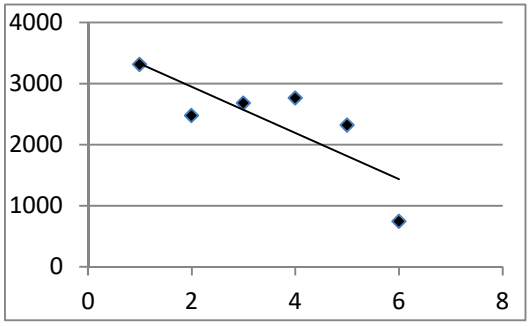

Fig. 3. Investment in tangible assets for the repair and maintenance of vessels, 2005 – 2010. The OX axis: 1 – 2005; 2 – 2006; ... 6 – 2010. The OY axis: thsd €.

To determine how the number of workers in the shipbuilding industry is correlated with the employment rate in Latvia, the corresponding equation of the straight line regression was computed on the basis of the statistics and analyzed (Fig. 4, Table 1). It was found that the number of workers in the industry varied in direct proportion to the employment rate. The determination coefficient is large enough: almost 59% of variation of the number of workers in the shipbuilding industry is related to a change in the employment rate in the country.

Table 1. The results of computation of factor dependence

No	Dependence, years	Regression equation y=f(x)	R - squared	Correlation coefficient **r**	Fisher Statistics		DW statistics
					F act.	F crit.	
1.	Change in the number of enterprises in the shipbuilding industry, Fig. 1. (2005-2011).	y = 2.607x + 18.286	0.852	0.923	28.74	6.61	2.416
2.	Change in the number of workers in the shipbuilding industry, Fig. 1. (2005-2011).	y = -7.132x+ 131.9	0.934	-0.966	70.87	6.61	2.588
3.	Change in the volume of sales, Fig. 2. (2000-2012).	y =2.42x+40.485	0.280	0.530	4.31	4.84	1.684
4.	Change in investment in tangible assets of the industry, Fig. 3. (2005-2010).	y = -377.69x + 3704.4	0.658	-0.811	7.682	7.71	1.695
5.	Dependence of the number of workers in the shipbuilding industry (y) on the employment rate in Latvia (x), Fig. 4. (2005-2011).	y = 21.507x- 862.46	0.586	0.766	7.087	6.61	1.142
6.	Dependence of the volume of sales of ship repair (y) on GDP per capita (x), Fig. 5. (2000-2012).	y = 0.004x+ 30.974	0.407	0.638	7.56	4.67	1.782

The degree of correlation dependence of factors is moderate and close to high r = 0.766. Since it is found that Fisher LSD $F_{act.}$ is larger than the critical value $F_{crit.}$, it can be stated that the computed regression equation is statistically significant and can be used for drawing practical conclusions. It can be stated that the number of workers in the shipbuilding industry varies proportionally to the total employment in Latvia.

The dependence of the volume of sales of ship repair in the industry on GDP per capita in Latvia is shown in Figure 5 and Table 1. The computed equation of straight line regression indicates a directly proportional dependence of the given factors. The obtained determination coefficient is small R^2 = 0.407, which is explained by a relatively large variance of data (MS = 1548.4). The degree of correlation dependence of factors is obtained to be moderate, and the correlation coefficient r = 0.638. The computed observable Fisher $LSD_{act.}F$ is larger than the critical value $F_{crit.}$. Therefore, the obtained linear regression equation is statistically significant, and it can be used. It can be concluded that the volumes of sales of ship repair in the industry are correlated with the level of GDP per capita in Latvia, which rather well characterizes the state of the national economy as a whole. Thus, the number of workers in the shipbuilding industry of Latvia and the volumes of sales are closely related to the state and development of the national economy: the successful functioning of the economy of Latvia implies the successful and sustainable development of the shipbuilding industry.

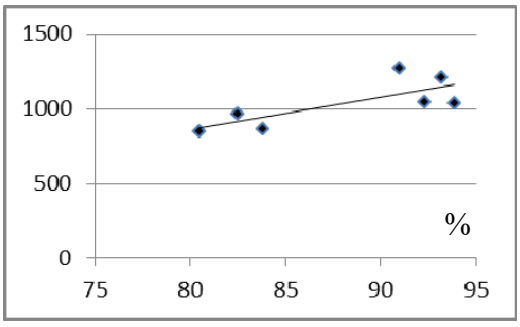

Fig. 4. Dependence of the number of workers in the shipbuilding industry (y) on the employment rate (%) in Latvia (x), 2005 – 2011.

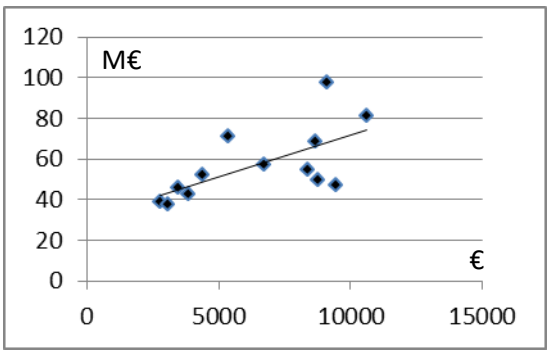

Fig. 5. Dependence of the volume of sales of ship repair (y) on GDP per capita in Latvia (x), 2000 – 2012.

The volume of output produced by the majority of small companies involved in the construction of sports boats and small-sized recreational vessels varied greatly in the period from 2005 to 2011, mainly because of the financial and economic crisis of 2008–2010 (Fig. 6). In the crisis years, the volume of output decreased by more than three-fold compared to the pre-crisis year of 2007. In 2011, the volume of output increased and reached two-thirds of the pre-crisis level. This again demonstrates the large dependence of the industry on fluctuations in the demand for products in the world markets, as they are mainly exported.

The performed analysis of statistical data on the shipbuilding industry of Latvia showed that the number of workers in the industry and the volumes of sales were closely correlated with changes in relevant indicators of the national economy as a whole. In the unfavorable economic situation arisen in the world, the crisis of 2008–2010, basic performance indicators of the industry deteriorated sharply, likewise the indicators of the economy as a whole. This is an expected process, because the shipbuilding industry is closely integrated into the world economy, the products are mainly exported, and competitors are scattered across the globe. Under the conditions of globalization, successful economic development requires constant improvement of production and competitiveness.

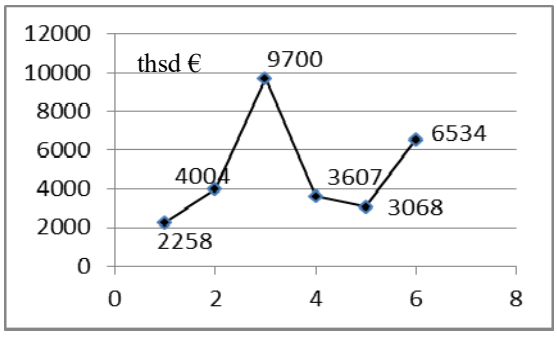

Fig. 6. Change in the volumes of output of sports boats and recreational vessels, 2005 – 2011. The OX axis: 1 – 2005; ... 3 – 2007; 4 – 2009; ... 6 – 2011.

Globalization means a new phase of business activity in the world economy and is characterized by the following attributes: a faster growth rate of foreign direct investment; extensive use of outsourcing, manufacturing of individual units of goods in countries with cheap labor force and often transfer of the whole production there; joint ventures, the absorption of some companies by other ones. In such circumstances, the Pareto Principle or the 80/20 rule becomes more stringent: 90/10 and even 99/1. Therefore, 90% or 99% of efforts in the business yield 10% or 1% of results, and the remainder is provided by 10% or 1% of the time and resource consumption. Exactly this opinion is held by most economics experts in the early 21st century. The right point of application of efforts rather than their amount is of major importance, but the former cannot be found using conventional algorithms of the 20th century. Such circumstances result in the increasingly significant role of human capital, people who are able to accept new ideas and possess the knowledge and skills necessary to turn the ideas into reality in the form of innovation (Truch 2001, Henning 2001). By innovation one understands the result of intellectual, scientific and technical or any other activities in any field concerning the effective change of management object through innovation implementation. Innovation – goods of inventions, patents, discoveries, new products, technologies, know-how, scientific principles, methods, etc. that are introduced into production. Innovation is the main vector of the successful economic development; there are many types of innovation (Nelson 1993). Exactly innovation, combined with a perfect human capital – highly qualified specialists, enthusiasts of their own business –, improves the competitiveness of individual companies and the industry as a whole (Портер 1993).

In recent years, Latvia has been experiencing an acute shortage of highly qualified specialists in many sectors of the national economy. This is also the case for the shipbuilding industry, which has scarce resources of highly qualified specialists in the field of metalwork in particular, such as welders, cutters, scaffolders and others. This is due to several different reasons. Workers should undertake special training, receive international certificates confirming their qualification, and have practical experience in shipbuilding. Working conditions in the construction, maintenance and repair of vessels are severe enough and often unhealthy. Therefore, although remuneration in the shipbuilding industry is competitive enough compared to other industries in Latvia, many young people, having worked for some time and become highly qualified specialists at the expense of enterprises, resign and go abroad to earn money, because they are paid more for the same work. Likewise other sectors of the economy, such as sewing, there is a high labor turnover.

The negative effect is exerted by the overall low level of remuneration in Latvia at a relatively high cost of living. As it is known, Latvia takes one of the last places in the EU by the level of remuneration. In terms of its economic development, in comparison with highly developed countries of the EU, Latvia can be referred to the so-called "catching-up" states, despite a relatively high level of GDP per capita and the fact that the income per capita accounted for $ 14,180 in 2012. In the World Bank ranking, Latvia takes the 66th place based on this indicator in the group of high-income countries (The World Bank…2013). Latvia has many negative attributes

of "catching-up" countries: a large difference in income between the rich and the main part of the population, low level of remuneration of most employed people. For example, in 2011 the Gini coefficient was 35.7 ДК that was much compared to the developed countries in the EU (Central…2013). This exerts a negative effect on the development of human capital.

To overcome these difficulties in the shipbuilding and ship-repairing industry that is characteristic of Latvia, it is necessary to develop a program of measures for the improvement of human capital. The system of training and retraining of qualified personnel should be developed. Training programs in the required specialties can be implemented at the existing educational institutions of Latvia by entering into appropriate contracts with them. Internships should be undergone as well as the term papers should be elaborated at shipbuilding companies. If it is not possible to educate and train specialists at the existing educational institutions, training should be provided abroad, covering a tuition fee. To keep trained and certified specialists from leaving Latvia in search of well-paid jobs, the remuneration system should be competitive and meet the European level. Only highly qualified and motivated specialists will be able to adopt and apply new appliances and technologies, to improve production and to implement innovation.

The company is considered innovative if it satisfies a number of criteria: at least 25% of volumes of sales account for products not older than 5 years; profit from products not older than five years is at least 10% of the total annual income; annual increase in the volume of new products or services is not less than 5%. According to these criteria, the number of innovative enterprises in Latvia accounts for a little more than 20%, in Lithuania it exceeds 25%, and in Estonia – more than 35%. In general, in the EU there are over 50% of such companies. The situation with innovative enterprises in Latvia is at a low level, the country takes one of the last places in the EU by investment in R&D. It is necessary to increase output with increased added value by raising the volume of intellectual property embedded in goods or services. Only those companies that annually allocate not less than 2% of total turnover to the development of new products or services become innovative.

A study carried out in Latvia in the early 21st century by the World Bank has shown that only large enterprises with more than 250 people employed are quite successful in the sphere of innovation. Small enterprises with fewer than 50 people employed, who make up the largest share of all enterprises in the country, are much less active in regard to innovation. In highly developed countries, large enterprises make a major contribution to the funding and support for science and high technologies that form the basis for innovation. For example, the expenditure on R&D accounts for almost 70% in the USA, approximately 73% in Japan, and more than 55% in the EU. In absolute terms, the USA annually invests in research more than 280 billion $, EU – approximately $ 200 billion, Japan – more than $ 100 billion. Many entrepreneurs in Latvia poorly understand the importance of innovation in the development of their companies or understand, but do not have the funds for it. In Latvia, more than 70% of GDP constitute services, rather than products of high-tech sectors of the economy. Number of innovative enterprises in the services sector is also percentagewise higher than in the manufacturing industry. This is a significant obstacle to increasing the competitiveness of the country. The President of the Association of Mechanical Engineering and Metalworking Industries of Latvia Vilnis Rantins has pointed out that in the present conditions of global competition it is not possible to manage without innovation. It is necessary to look for new opportunities to reduce production costs in order to achieve the best relationship between price and quality of products, competing with the leading manufacturers in the world markets.

Virtually all successful cases of rapid overcoming of backwardness of countries, socio-economic breakthrough occurred when a "catching-up" country managed to find its original measures, creative solutions to overcome the problems and improve competitiveness (Rodrik 2007). World practice also demonstrates that the greatest success is achieved by companies and countries that use the model of development based on human capital. The number of relatively large enterprises is limited in Latvia. These include two shipbuilding and ship-repairing yards in Riga and Liepaja. Innovative development of these companies and the whole shipbuilding industry, which is characteristic of Latvia, may be exactly one of the main key aspects of the successful solution to the problem of transition of Latvia to a post-industrial economy.

Therefore, certainly, the state and the Central Bank should in every possible way contribute to the transition process of the shipbuilding industry to the innovation-based development. To achieve this, it is necessary to attract the EU structural funds and enhance guarantee programs for entrepreneurship. At the same time, to develop programs of state support for business it is necessary to attract the entrepreneurs themselves and banks. The state should jointly take over some of the risks of innovation-based development of the shipbuilding industry. Good support for innovative companies would be rejection of income tax on profit if it is invested in the development of companies. As international experience shows, the determining conditions of the investment and innovation activity of the state and companies are as follows:

- a sufficiently high level of development of science and its practical application, a large proportion of expenditure on research in the total budget (4 – 5%) and GDP (1.5 – 2%);
- the development of globally competitive innovation projects supported by the state;
- favorable legal framework that provides financing and crediting of large-scale national projects;
- the establishment and use of substantial investment funds in terms of volume that may become the basis of innovation.

Thus, the Latvian state has an important task: to increase the level of development of science, its funding and to implement a range of activities necessary for the successful development of innovation and competitive-ness of the national economy.

Conclusions

Latvian shipbuilding industry is developing quite simultaneously with the national economy, other sectors of the country. Its growth was adversely affected by the global financial and economic crisis of 2008–2010. Since 2010, the industry again has begun increasing the volumes of output. The shipbuilding industry faces the same problems as the other sectors of the economy. There is an acute problem of development and improvement of human capital, the training of professionals who are able to accept the achievements of science, technology and to promote an innovation-based development of companies. Only innovation in the presence of highly qualified and motivated human capital can ensure a reliable increase in competitiveness and sustainable development of companies under conditions of global competition. It is necessary to develop a special program for improving human capital, a system for training and retraining of qualified personnel. It is necessary to improve the system of remuneration, bring it in line with European standards.

The largest shipbuilding companies of Latvia in Riga and Liepaja can and should become leaders of innovation-based development of the industry. This will facilitate the transition of economy of Latvia to a post-industrial path of development and increase the competitiveness of the country. To successfully achieve these objectives, the government should create a favorable environment to promote by all possible means the innovation-based development of industry: in the tax and banking spheres, to allocate funds for research, apply its results in practice, etc.

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ASPECTS OF STABLE DEVELOPMENT OF THE SHIPBUILDING BRANCH IN LATVIA

S u m m a r y

Historically and geographically Latvia has always been a maritime state. Therefore, even nowadays the marine industry – vessel/ship or other watercraft construction, repair and maintenance are the important element of the industry of the country. During the world economic crisis from 2008 till 2010 in the back of the fall of production volume there was a slowdown in the development of maritime traffic and ship construction, large shipping companies refused procurements of new vessels. During the economic recovery period there appeared a tendency for the need in vessels with qualitatively new performance parameters in respect to their functions, economical efficiency, ecological safety etc. Powerful motives for development of technologies in the field of vessel design and construction are the requirements of national and international structures, marine registers and organisation responsible for vessel traffic safety, environmental protection and qualification of the crew and others that constantly become more severe.

The economical systems for stable development should be regularly improved as well as increase the own competitiveness to successfully compete with the systems of other countries and regions. Stable development of the system (a branch of economy) firstly means high growth rates of incomes that exceed average indicators in group of comparable branches. Competitiveness of the branch is the ability of branch enterprises to produce competitive output that has certain advantages in comparison to the similar production in other countries. An important condition of stable development of economic systems is admitted to be stimulation of introduction of new technologies, increase of the added value. This can be achieved by attracting wide range of investments, leading experience in management and innovations. The word "innovations" is usually understood as the final result in the form of a new or improved product in the market or in the form of a new or improved technological process in practice. One of the main sources of improvement of economy branch competitiveness is development of human capital assets, constant training of employees. The computations of experts showed that development potential of modern economical systems depends mostly on two indicators: human capital assets and level of investment-innovation activities. *The tasks of the paper* are to assess the condition of the shipbuilding industry in Latvia and to explore the ways for improving the competitiveness of the industry. *The originality of the paper* is that the peculiarities of operation of vessel construction branch in Latvia after the regain of independence were considered for the first time. Analysis of aspects providing successful development of Latvian traditional branch of vessel construction has been done and substantiated recommendations have been elaborated. *Object of the research:* Latvian branch of construction, servicing, repair of vessels and other watercrafts. *Aim of the research:* analysis of the condition of the branch and elaboration of substantiated recommendations for increase of stability of development and competitiveness thereof in the conditions of global competition. *Methods of research:* analysis of statistical data, mathematical modelling, correlation and regression analysis.

In the paper, all computations were performed on the basis of the data provided by the Central Statistical Bureau of Latvia. The performed mathematical analysis of statistical data on the shipbuilding industry of Latvia showed that the number of workers in the industry and the volumes of sales were closely correlated with changes in relevant indicators of the national economy as a whole. The shipbuilding industry is closely integrated into the world economy, the products are mainly exported, and competitors are scattered across the globe. Under the conditions of globalization, successful economic development requires constant improvement of production and competitiveness. Innovation is the main vector of the successful economic development. Exactly innovation, combined with a perfect human capital – highly qualified specialists, improves the competitiveness of individual companies and the industry as a whole. In recent years, Latvia has been experiencing an acute shortage of highly qualified specialists in many sectors of the national economy. This is also the case for the shipbuilding industry. The system of training and retraining of qualified personnel should be developed. Only highly qualified and motivated specialists will be able to adopt and apply new appliances and technologies, to improve production and to implement innovation. The Latvian state has an important task: to increase the level of development of science, its funding and to implement a range of activities necessary for the successful development of innovation and competitiveness of the national economy. The largest shipbuilding companies of Latvia in Riga and Liepaja can and should become leaders of innovation-based development of the industry. This will facilitate the transition of economy of Latvia to a post-industrial path of development and increase the competitiveness of the country. To successfully achieve these objectives, the government should create a favorable environment to promote by all possible means the innovation-based development of industry.

KEY WORDS: shipbuilding branch, competitiveness, mathematical modelling, innovation, human capital.

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SUSTAINABLE SOCIAL AND ECONOMIC DEVELOPMENT OF REGIONS – CASE STUDY OF COUNTIES MUNICIPALITIES IN KURZEME PLANNING REGION

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Annotation
Sustainable social and economic development is one of the most important issues for countries worldwide. There is always topical question, how to provide development, that influences positive different spheres of life and all members of society. Successful implementation of this goal can be reached only if there is also sustainable development of regions in the country, as results of regions are very closely linked to development of the country, and directly predetermine it.
In Latvia, two levels of regions can be stated – planning regions and municipalities (of cities and counties). On the one hand, there can be positive synergy between regions in terms of social and economic development if regions directly or indirectly cooperate in some fields. On the other hand, negative trends in one region can result in undesirable processes in other regions. And, of course, there can be also competition between regions (e.g. for state budget funding, private investment, human resources etc.).
Aim of the research – to assess main trends of social and economic development of counties municipalities in Kurzeme planning region. For research, method of comparison, method of ranking, analysis of dynamic and correlation analysis was made. For research, information from Central Statistical Bureau of Latvia and from the reports by State Regional Development Agency "Regional Development in Latvia" about counties in Kurzeme planning region was used. To assess social and economic development trends in counties municipalities of Kurzeme planning region, such indicators as number of population, population density, demographic burden, gross wages and salaries, number of economically active statistical units was analysed.
Results of research show that there is correlation between some social and economic indicators that characterizes counties municipalities. Decrease of population number contributes to decrease of economic activity in county and so – to decrease of wages. In long term perspective, these processes reinforce each other and can create situation with plenty other serious development problems.
KEY WORDS: social development, economic development, county municipality, gross wage, Kurzeme region.

Introduction

One of very important and central aim of every country is to ensure sustainable and balanced social and economic development. For this reason, well-considered and successful development of regions is critically important.

Sustainable development is also the question about ability to use limited resources as effective as possible and that includes deliberative (and successful) operation in economic and social, environmental and institutional dimensions as they are closely linked and predetermines each other.

In Latvia, there are many challenges for development, as there are negative or unwanted trends in such very important indicators as number of population, structure of GDP, quality of life and others (by National Development Plan of Latvia for 2014-2020). If we analyse situation at regional level, for some regions and counties in Latvia these problems are especially topical. On the other hand, there are different approaches to evaluate relationship between population change and sustainable development, so demographic situation in Latvia and regions cannot be seen as unambiguously poor, without thorough analysis. Nevertheless, if we assume that there is positive correlation between number of inhabitants and economic growth, reduction of population number is an unfavourable trend for sustainable development.

Even if there can be seen positive trends in some indicators of social and economic situation, results must be interpreted carefully. We can assess changes in situation truly as development only, if all population benefits the results of these positive changes.

Focus of the research is to assess the main trends of social and economic development of counties municipalities in Kurzeme planning region.

The object of the research is social and economic development of counties municipalities in Kurzeme planning region.

The subject of the research is trends of social and economic development of Kurzeme planning region municipalities.

To assess social and economic development trends in counties municipalities of Kurzeme planning region, several indicators were used:

- number of population,
- population density,
- demographic burden,
- gross wages and salaries,
- number of economically active statistical units.

For analysis, method of comparison was used – data of counties was compared with average level of Kurzeme region and average indicator of Latvia. Analysis of dynamics gives impression about trends of social and economic situation. Also, method of ranking was used to evaluate differences in situation of small, medium-size

and big counties. By using correlation analysis, hypothesis about interaction between social and economic situation was verified.

In the research are used data about basic indicators of social and economic development of the counties municipalities in Kurzeme planning region from the reports by State Regional Development Agency "Regional Development in Latvia" and data collected by Central Statistical Bureau of Latvia.

Concept of social and economic development

The research "Methodological solutions for assessment of the regional policy and territorial development" describes the development using four dimensions, see Fig.1.

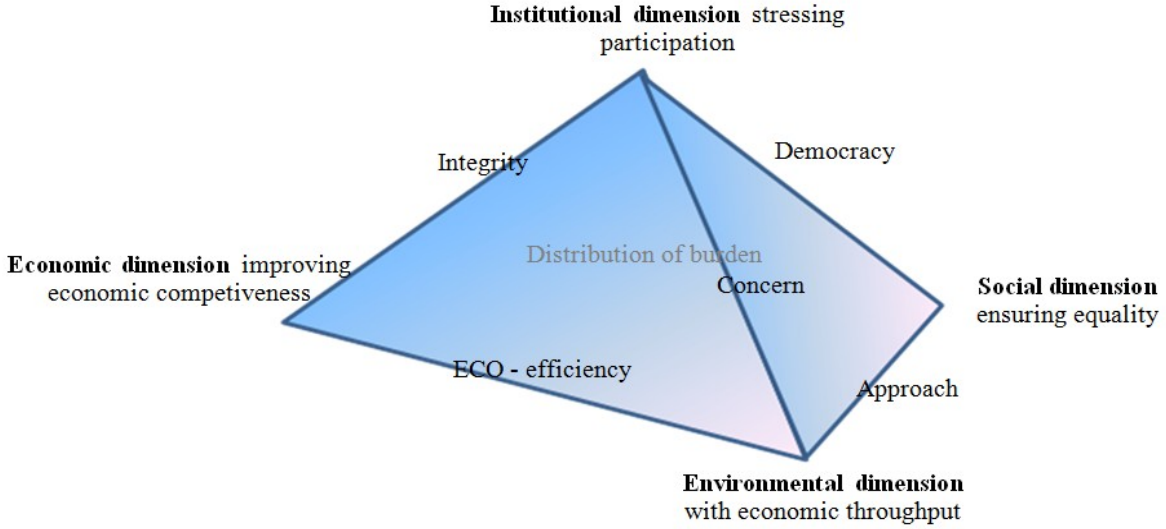

Fig. 1. Dimensions of sustainable development and links with them (Latvijas Republikas Valsts reģionālās attīstības aģentūra, 2009)

Consequently, if the country or region wants to develop sustainably (i.e., with no negative impact on the potential development of future generations), an integrated approach is needed. All – economic and social, environmental and institutional dimensions are significant. In this research, main accent is on social and economic dimensions, but we also consider close links between dimensions.

One should take into account also, that there are many limitations for the development, so every country or region has restricted number of possible scenarios of sustainable development. (Trušiņš, 2010) Sustainable development is the question about ability to use limited resources as effective as possible and that includes deliberative (and successful) operation in all dimensions, mentioned before, as they are closely linked and predetermines each other.

Result of successful development can be described as competitiveness – ability to ensure growth and better life conditions for inhabitants. Competitiveness of regions or counties can be characterized likewise as competitiveness of country. Four attributes are: factor conditions, demand conditions, related and supporting industries and firm strategy, structure and rivalry, see Fig. 2. (Porter, 1990) Also, mutual interaction of regions or counties must be taken into account – it can be with positive or negative result (i.e. synergy from cooperation or competition between regions for inhabitants, resources etc.).

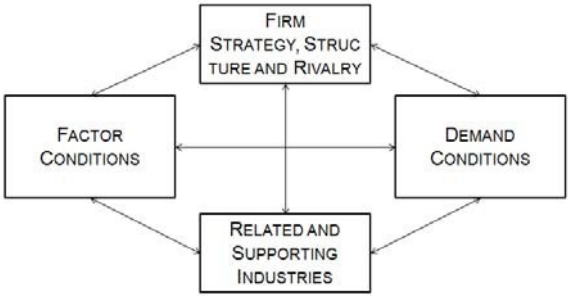

Fig. 2. Determinants of National Competitive Advantage by Michael E. Porter

The central players of regional development are inhabitants. On the one hand, inhabitants are important resource, as people are working, creating value and providing goods and services to ensure better life conditions. On the other hand, inhabitants are also clients – they use produced goods and services and benefits from social and economic development.

There exist different approaches to evaluate connection between population and sustainable social and economic development. Relationship between population change and sustainable development can be assessed (Marsiglio, 2011):

1. Optimistic – considers population as an important input to produce knowledge: the higher the population, the higher the probability that a new Isaac Newton would be born.
2. Neutral – based on empirical foundation that there exists little cross-country evidence that population

growth might either slow down or encourage economic growth.

3. Pessimistic – considers population as a threat for growth. This can be due to two reasons: if the economy shows fixed resources and no sources of technical progress, in the long run the production activity will not be able to satisfy the pressure of population growth leading per-capita resources to fall below a minimal subsistence level. If the economy instead shows rapid population growth, a large share of investment will be devoted to satisfy the needs of the increasing population rather than to increase per-capita capital endowments.

This means that each situation and changes must be analysed very carefully, as there can be different trends and correlation between indicators.

Social and economic development of counties municipalities in Kurzeme planning region

There are many negative and unwanted development trends in Latvia and regions (by National Development Plan of Latvia for 2014-2020):

- decreasing number of population,
- uneven external trade balance,
- pro-cyclic nature of government finances,
- not sustainable structure of GDP,
- high unemployment rate,
- the poverty level is among the highest in the European Union,
- in terms of income levels, Latvia is the most unequal European Union Member State.

These problems are topical also at the level of planning regions and at level of local municipalities.

In Latvia are 5 planning regions – Riga, Pieriga, Kurzeme, Vidzeme and Latgale planning region. Kurzeme planning region, in context of Latvia, is average development level region. If compared to other planning regions, Kurzeme region is 3rd best (by such indicators as household income, unemployment level, GDP per capita and other). If compared to average indicators of Latvia, situation in Kurzeme region is worse.

In Kurzeme planning region are 18 counties municipalities that can be divided in 3 groups according to the size:

1. 9 small municipalities (number of inhabitants is less than 5000). This group includes:
   - Alsunga county,
   - Mērsrags county,
   - Rucava county,
   - Vaiņode county,
   - Pāvilosta county,
   - Durbe county,
   - Nīca county,
   - Roja county,
   - Dundaga county.
2. 6 medium-size municipalities (number of inhabitants is 5001 – 20 000):
   - Skrunda county,
   - Priekule county,
   - Brocēni county,
   - Grobiņa county,
   - Aizpute county,
   - Ventspils county,
3. 3 big municipalities (number of inhabitants is 20 001 – 50 000):
   - Kuldīga county,
   - Saldus county,
   - Talsi county.

In Table 1, data about 3 indicators, characterizing development of social situation in Latvia, Kurzeme planning region and counties municipalities of Kurzeme planning region are summarized.

In 6 year period, number of population in Latvia decreased for 176738 persons, or 8.2% if compared to year 2009. In Kurzeme region decrease is more rapid – 10.9% and in all counties of Kurzeme region (except Grobiņa county) also decrease is more rapid than in Latvia as a whole. The highest decrease in absolute terms was in Talsi county – number of population decreased for 3714 persons, but in relative terms – in Brocēni county, where number of population reduced for 15.3%.

Changes of population density is caused by changes in number of population, as there is no or very small changes of territory of counties. A relatively high population density in Latvia is because high level of density in Riga. In Kurzeme region, highest population density is in Roja county, that was 4.75 times bigger than lowest population density – in Rucava county (at the beginning of the year 2015).

Demographic burden is the indicator of the public distribution by age groups in county. To calculate the indicator, details about the number of people under working age, those of working age and over working age are used. It also characterizes the existing public burden imposed on the people of working age. Changes of demographic burden in counties are very different – from decrease in relative terms for -4.6% (Rucava county) to increase for 10.3% (Grobiņa county). As this indicator depends on changes in 3 groups of population, trends can be not declared strict – decrease, as well as increase can be assessed as positive or negative change of situation. If increase is determined because of increase in number of people under working age, it means good perspective in future, as there will be more adults. If decrease is determined because of decrease of relative share of people over working age, that shows positive changes in population aging structure and lower public burden imposed on the people of working age.

Demographic burden in Latvia at the beginning of year 2015 has increased by 55 persons, or 9.95, comparing to year 2011. The overall situation in Latvia is not very good – population is becoming older, many working age people are going to work and live abroad (also with families), average age of having first baby is increasing and average number of kids in family – decreasing. If we take into account all this, changes of demographic burden in Latvia, Kurzeme planning region and all analysed counties municipalities can be described as negative trend.

Table 1. Indicators of social development of counties municipalities in Kurzeme region and of Latvia
(compiled and calculated by author, using data from Central Statistical Bureau of Latvia and from State Regional Development Agency "Regional Development in Latvia")

Indicator / County	Number of population at the beginnging of the year				Population density at the beginnging of the year				Demographic burden at the beginnging of the year			
	Year 2009	Year 2015	Changes		Year 2010	Year 2015	Changes		Year 2011	Year 2015	Changes	
			Persons	% to year 2009			Persons	% to year 2010			Persons	% to year 2011
Aizpute	9965	8883	-1082	-10.9	15	14	-1	-6.7	661	690	29	4.4
Alsunga	1573	1416	-157	-10.0	8	7	-1	-12.5	592	584	-8	-1.4
Brocēni	6827	5785	-1042	-15.3	13	12	-1	-7.7	623	644	21	3.4
Dundaga	4567	4039	-528	-11.6	7	6	-1	-14.3	590	621	31	5.3
Durbe	3278	2854	-424	-12.9	10	9	-1	-10.0	616	653	37	6.0
Grobiņa	9701	8929	-772	-8.0	20	18	-2	-10.0	593	654	61	10.3
Kuldīga	26065	23898	-2167	-8.3	15	14	-1	-6.7	585	595	10	1.7
Mērsrags	1742	1582	-160	-9.2	15	15	0	0.0	657	655	-2	-0.3
Nīca	3737	3419	-318	-8.5	10	10	0	0.0	615	634	19	3.1
Pāvilosta	3051	2701	-350	-11.5	6	5	-1	-16.7	643	652	9	1.4
Priekule	6236	5555	-681	-10.9	12	11	-1	-8.3	626	641	15	2.4
Roja	4215	3799	-416	-9.9	21	19	-2	-9.5	583	587	4	0.7
Rucava	1949	1681	-268	-13.8	4	4	0	0.0	695	663	-32	-4.6
Saldus	27309	24087	-3222	-11.8	16	14	-2	-12.5	554	592	38	6.9
Skrunda	5634	5082	-552	-9.8	10	9	-1	-10.0	633	658	25	3.9
Talsi	33161	29447	-3714	-11.2	18	17	-1	-5.6	566	601	35	6.2
Vaiņode	2783	2469	-314	-11.3	9	8	-1	-11.1	699	713	14	2.0
Ventspils	12821	11697	-1124	-8.8	5	5	0	0.0	562	597	35	6.2
Kurzeme region	*285968*	*254722*	*-31246*	*-10.9*	*21*	*19*	*-2*	*-9.5*	*589*	*638*	*49*	*8.3*
Latvia	2162834	1986096	-176738	-8.2	33	31	-2	-6.1	558	613	55	9.9

In Table 2 are summarized data about gross wages and salaries and number of economically active statistical units in Latvia, Kurzeme planning region and counties municipalities of Kurzeme planning region – these indicators are used to represent changes of economic situation.

Indicator Gross wages and salaries is used, because this is main source of income for inhabitants. Analysis of income is very important, as income is a key measure of economic welfare and the prosperity of residents living in the region. (Oguz, Knight, 2010)

Table 2. Indicators of economic development of counties municipalities in Kurzeme region and of Latvia
(compiled and calculated by author, using data from Central Statistical Bureau of Latvia)

Indicator / County	Gross wages and salaries, EUR				Number of economically active statistical units per 1000 inhabitants			
	Year 2009	Year 2014	Changes		Year 2009	Year 2012	Changes	
			EUR	% to year 2009			Units	% to year 2009
Aizpute	519	621	102	19.7	72.1	86.7	14.6	20.3
Alsunga	429	510	81	18.9	77.6	112.8	35.2	45.4
Brocēni	487	584	97	19.9	54.9	67.5	12.5	22.8
Dundaga	383	439	56	14.6	50.8	66.1	15.3	30.1
Durbe	453	578	125	27.6	103.4	123.6	20.2	19.5
Grobiņa	447	666	219	49.0	61.8	74.9	13.1	21.1
Kuldīga	486	557	71	14.6	69.6	78.4	8.8	12.6
Mērsrags	503*	618	115	22.9	45.9	48.1	2.2	4.8
Nīca	345	476	131	38.0	93.4	99.0	5.6	6.0
Pāvilosta	358	532	174	48.6	85.5	102.9	17.3	20.3
Priekule	408	510	102	25.0	85.5	103.8	18.3	21.5
Roja	391	463	72	18.4	49.3	49.8	0.4	0.9
Rucava	380	534	154	40.5	100.6	132.7	32.1	31.9
Saldus	539	625	86	16.0	75.5	86.9	11.4	15.2
Skrunda	430	549	119	27.7	60.0	67.7	7.7	12.8
Talsi	578	655	77	13.3	70.2	79.4	9.2	13.1
Vaiņode	385	485	100	26.0	54.3	63.6	9.4	17.3
Ventspils	622	818	196	31.5	60.3	65.5	5.2	8.6
Kurzeme region	***609***	***702***	***93***	***15.3***	***63.6***	***79.5***	***15.8***	***24.9***
Latvia	**696**	**834**	**138**	**19.8**	**61.5**	**72.1**	**10.6**	**17.2**

* Year 2011

In year 2014, in Latvia average gross wages and salaries have increased for 138 EUR, or for 19.8%, comparing to year 2009. In Kurzeme region this increase is not so great – for 93 EUR or 15.3 %. Gross wages and salaries have increased in all counties municipalities of Kurzeme planning region, but intensity of changes is different – the most rapid increase has been in two counties – Grobiņa county (49%) and Pāvilosta county (48.6%).

Different dynamics of changes has also changed differences between counties – in year 2009 highest gross wages and salaries were in Ventspils county, but lowest – in Pāvilosta county and difference was 277 EUR or 80% from Pāvilosta county indicator. In year 2014, highest indicator also were in Ventspils county, but lowest – in Dundaga county and difference was 379 EUR or 86% from Dundaga county indicator. Also, by 3.35%p has increased difference between gross wages and salaries in Kurzeme planning region and Latvia. This all shows increase of income inequality between counties and in Latvia as a whole.

Indicator Number of economically active statistical units per 1000 inhabitants is used, as counties municipalities are very different in terms of number of inhabitants (see Table 1). The highest economic activity can be observed in Durbe and Rucava counties, but lowest – in Mērsrags county. Indicator in many counties are higher than in Latvia overall, but this cannot be interpreted unambiguously, as this data include very different units by type of activity and size. Economically active statistical units are:

- self-employed persons,
- individual merchants,
- commercial companies,
- peasant and fisherman farms,
- funds, foundations and associations,
- state budgetary institutions,
- local government budgetary institutions.

Due to differences in form and type of activity and size, these statistical units have distinct capacity to provide jobs, pay wages and salaries, produce goods, create strong network of cooperation etc.

Analysis of development trends of counties and sustainable development opportunities

Different dimensions of development are closely linked to each other, as is mentioned before (see. Fig. 1). Problems or weakness in one dimension can encumber sustainable development in other dimension and region as a whole. So it is very important to monitor and analyse interdependence of indicators that characterize these dimensions and draw conclusions to provide sustainable planning.

In Fig. 3 is analysed correlation between number of inhabitants and gross wages and salaries. Counties are grouped by number of inhabitants in group of small, medium-size and big counties, and ranked. According to Fig. 3, size of county can be considered as factor that influences population income. But this can be seen also contrary – number of population in county depends on the prosperity of population. Especially this correlation is expressed in groups of medium-sized and big counties.

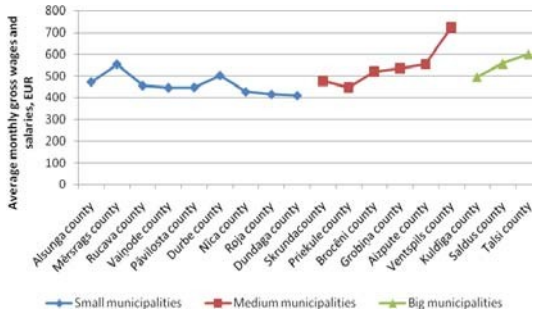

Fig. 3. Average monthly gross wages and salaries in counties of Kurzeme planning region during period 2009 – 2014, EUR
(compiled and calculated by author, using data from Central Statistical Bureau of Latvia)

Fig. 4 presents correlation between changes of gross wages and salaries and changes of number of inhabitants. It can be observed that there is correlation between these two indicators in groups of counties, as well as in all counties of Kurzeme planning region. Decrease of population number contributes to decrease of economic activity in county and so – to decrease of wages. In long term perspective, these processes reinforce each other and thereby creates very topical problem in Kurzeme region and Latvia – empty and inactive countryside. These results allow to regard population as an important input to sustainable social and economic development of region.

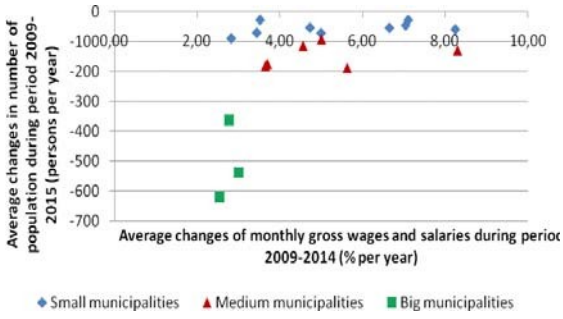

Fig. 4. Correlation between increase of gross wages and salaries and decrease of population number during period 2009 – 2014
(compiled and calculated by author, using data from Central Statistical Bureau of Latvia)

Conclusions

Sustainable development of region is possible only if there is successful development of different dimensions – social, economic, environmental and institutional. In Latvia are observed many negative trends in all dimensions that can sufficiently impact possibilities of sustainable development. Analysis must be done from bottom to top, as situation in regions is very closely linked to development of the country, and directly predetermine it.

Kurzeme planning region, in context of Latvia, is average development level region. If compared to other

planning regions, Kurzeme region is 3rd best (such indicators as household income, unemployment level, GDP per capita and other was used). If compared to average indicators of Latvia, situation in Kurzeme region is worse. As can be seen from analysis, indicators that characterizes Kurzeme region are formed from very different situation of counties municipalities. Counties are different by all indicators used for analysis – number of inhabitants, population density, demographic burden, gross wages and salaries, number of economically active statistical units, as well as by trends of changes of situation.

Differences in population income is correlated to (or influences) decrease of number of inhabitants in counties. On the other hand, decrease of number of inhabitants contributes to decrease of economic activity in county and so – to decrease of wages. In long term perspective, these processes reinforce each other and thereby creates very topical problem in Kurzeme planning region and Latvia – empty and inactive countryside. Thus, population is an important input to sustainable social and economic development of region and well-thought planning is required to change trends of changes in situation that treats sustainable development opportunities.

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SUSTAINABLE SOCIAL AND ECONOMIC DEVELOPMENT OF REGIONS – CASE STUDY OF COUNTIES MUNICIPALITIES IN KURZEME PLANNING REGION

S u m m a r y

Sustainable social and economic development is one of the most important issues of countries worldwide. There is always topical question, how to provide development, that influence positive different spheres of life and all members of society. Successful implementation of this can be reached only if there is also sustainable development of regions in the country, as results of regions are very closely linked to development of the country, and directly predetermine it.

In Latvia can be stated two levels of regions– planning regions and municipalities (of cities and counties). On the one hand, there can be positive synergy between regions in terms of social and economic development if regions directly or indirectly cooperate in some fields. On the other hand, negative trends in one region can result in undesirable processes in other regions. And, of course, there can be also competition between regions (e.g. for state budget funding, private investment, human resources etc.).

Aim of the research – to assess the main trends of social and economic development of counties municipalities in Kurzeme planning region. For research, method of comparison, method of ranking, analysis of dynamics and correlation analysis was made. For research, information from Central Statistical Bureau of Latvia and from the report by State Regional Development Agency "Regional Development in Latvia" about counties in Kurzeme planning region was used. To assess social and economic development trends in counties municipalities of Kurzeme planning region, such indicators as number of population, population density, demographic burden, gross wages and salaries, number of economically active statistical units was analysed.

There are many negative and unwanted trends in Latvia and regions, such as decreasing number of population, uneven external trade balance, pro-cyclic nature of government finances, and not sustainable structure of GDP, high unemployment rate, high poverty level, and high income inequality. These problems are topical also at the level of planning regions and at level of local municipalities.

Kurzeme planning region, in context of Latvia, is average development level region. If compared to other planning regions, Kurzeme region is 3rd best (by such indicators as household income, unemployment level, GDP per capita and other). If compared to average indicators of Latvia, situation in Kurzeme region is worse. As can be seen from analysis, indicators that characterizes Kurzeme region, are formed from very different situation of counties municipalities.

Results of research show that there is correlation between some social and economic indicators that characterizes counties municipalities. Decrease of population number contributes to decrease of economic activity in county and so – to decrease of wages. In long term perspective, these processes reinforce each other and can create situation with plenty other serious problems.

KEYWORDS: social development, economic development, county municipality, gross wage, Kurzeme region.

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THE CONCEPT OF CIRCLED ECONOMY AS A COMPETITIVENESS FACTOR: MACRO-ECONOMIC ASPECT

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Annotation
The rapid dispersion of the idea of circled economy is determined by the need for suitable and effective management of waste and resources. Today's manufacturing processes are ineffective and wasteful; they use too much primary raw materials and do not recycle used products. Circular economy is only now receiving more attention from scientists, after European Commission published a communication „Towards a circular economy: A zero waste programme for Europe". The object of circular economy is waste recycling, using it as materials for manufacturing or energy production. Due to the rapid growth of the economy over the recent decades, technologies, population migration from rural areas to urban, growing quality of life, amounts of waste are significantly increasing and becoming a serious ecological disaster in some heavily polluted areas. The international environmental agencies analyse negative impact of waste, focusing on pollution reduction and need of efficient recycling. Today, European countries with European Commission, implement zero waste policies, aiming to improve waste management and recycling efficiency. Zero waste policy is understood by scientists as unrealistic and unreachable goal in today's economy, but it works as a preventive measure to encourage countries to implement effective waste management and recycling policy. This situation leads to a growing interest among scientists concerning waste management opportunities and innovative technologies integration to ensure sustainable development while maintaining economic growth and the saving of natural resources. Circular economy implementation involves waste collection, transportation and recycling processes. Industry of waste management plays an important role not just in circular economy, but in helping to move away from linear production to efficient resources management for manufacturing and energy production sectors as a supplier as well.
KEY WORDS: circled economy, competitiveness, macro – economic factors, value chain, waste economy.

Introduction

Today's world confronts waste crisis because of ineffective manufacturing, where materials are used inefficiently and the by-products are not recycled. Strategies for dealing with the global waste crisis focus on improving industrial waste management policies, prevention and minimization, source reduction, better waste treatment and enhancement of recycling opportunities (Clapp 2010). The idea of circled economy is widely spreading around the world, together with its goal of promoting proper waste and resource management. The theme of circular economy was not extensively analysed by scientists, it is still on the rhetorical level. Scientists and international organizations are taking first steps to define the concept of circular economy, its importance to economic development and its prospects for implementation. Latest scientific publications only encourage the search for ways to put into practice the use of waste as one of the potential sources of raw materials.

Supporters of circled economy emphasize the use of waste as raw materials before it becomes final waste. It allows the use of waste in production, processing it into raw materials or energy. This economic model does not recycle waste in the traditional ways. Although recycling is the key of this model, it is related to recovery of resources, efficiency of resources, sustainable consumption and production, effective supply of raw materials, industrial symbiosis, zero waste implementation, eco-design, waste prevention and minimization, social responsibility (Velis, Wilson 2014).

The concept of circular economy is best described in European Commission published communication „Towards a circular economy: A zero waste programme for Europe" in 2014. This document defines further waste management policies across Europe and includes the areas of economy such as manufacturing and marketing. Although China implemented circular economy in 2008, it is based on the 3R – Reduce, Reuse and Recycle. The European Union understands circular economy as one more tool to ensure economic growth of the Union, improving its stability and prosperity. The circular economy is the sequel of sustainable development and bio-economy, which cover the specific areas of waste recycling to resources or energy; thus, strengthening the industrial sector. Circular economy can improve the country's competitiveness through manufacturing optimization, composting, and renewable energy production.

The question arises: how to cover the collection, transportation and recycling processes of waste to replace primary resources?

Today's society is faced with several essential problems: rapidly depleting natural resources, environmental pollution, and energy crisis. All these problems are closely linked and are conditioned by each other. It is necessary to implement integrated solutions that help to solve several problems at once.

The waste is considered to be renewable resource, the amount of which directly depends on the change of the habits of population, standards of living, and the implementation of public policies. In recent years, growing population has been generating even more

waste. It needs to be managed effectively. Waste burning or burial in landfills is no longer an effective solution. It is necessary to look out for new waste management solutions to profit economically and environmentally. Economically developed countries which generate most waste can ensure effective transportation, disposal from landfills, recycling and reuse in manufacturing.

The goal of the study is to investigate the competitive factors of circular economy in the macro – economical aspect.

The concept of circular economy

The definition of circular economy was formulated and used by environmental scientists in 1970. So why, then, does the circular economy matter? At the global level, resource use has continued to grow rapidly in the past few decades. Still, waste recycling policy is not effective and about 50 per cent of waste still goes to landfills. Another reason is "weak" ecological modernization policy frameworks, as well as insufficient intervention in post-industrial countries. This started being critiqued as ineffective at addressing the core causes of environmental unsustainability (Hobson 2015). Circular economy means the transition from linear economy to a circular one. This model keeps resources in circulation for as long as possible.

Circular economy includes production and consumption sectors in order to reduce the amounts of waste generated, increasing the amount the amount collected and recycled at the same time. The idea of "Circular economy" is rapidly entering the world of wastes and resources management discourse, becoming a mainstream concept on the rhetorical level. According to technological development in the industrial sector, waste recycling helps to improve production efficiency, reduce the quantities of primary raw materials used (Preston 2012). In his research paper, Velis (2015) defines circular economy as the returning of used resources that would otherwise become waste back into the economy. Today, the implementation of circular economy in the industry sector is an important waste management process, which will help ensure efficiency.

In 2014, when the European Commission published its communication „Towards a Circular Economy: A Zero Waste Programme for Europe", scientists started to analyze circular economy's implementation possibilities (Hobson 2015).

Since the industrial revolution, global industrial activity was based on a linear approach: collect, produce, consume, and discard. This means that in recent decades, non-recycling waste quantities have grown rapidly. In recent years, the European Union seeks to reform the economy in order to encourage more efficient use of natural resources and reduce environmental pollution, which would result in the purchase of less raw materials and more efficient use of secondary resources extracted from outdated and no longer used products. European Commission developed and proposed a circular economy model in 2014 (Fig 1). Its' main objective – to keep product added value as long as possible, avoiding waste formation (Ragelienė 2014).

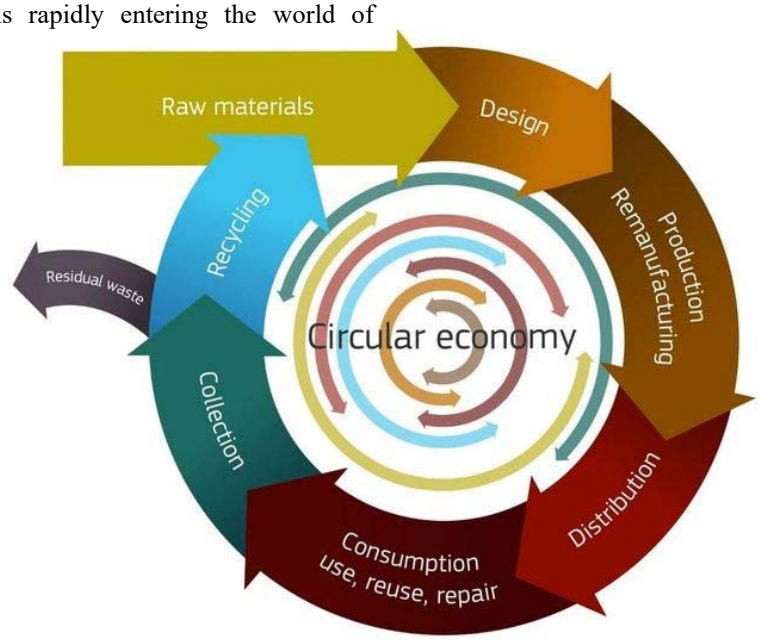

Fig. 1. Model of circular economy (Europos Komisija 2014)

All waste generated during manufacturing and consumption is recyclable, creating new products and raw materials. This model justifies only final waste that cannot be recycled or used elsewhere.

Each stage of this model makes it possible to reduce costs and dependence on natural resources, stimulate production and reduction of waste, as well as the generation of harmful substance emissions. Circular economy contributes to sustainable development goals through production efficiency, more efficient use of raw materials, recycling, and waste reduction.

Circular economy requires changes throughout the entire production chain from product design to consumption. This also leads to new business models for waste as a raw materials, as well as new methods to

evaluate these matters and research consumer behaviour. However, the circular economy cannot completely eliminate the linear economic features, since the need to acquire primary raw materials and dispose of the final waste remains (Andersen M. S. 2007).

The implementation of circular economy become an important objective in the mission to ensure the efficiency of waste management. This change occurred when politicians and businessmen understood that increasing global competition for access to natural resources for an affordable price is becoming more and more difficult. In this context, profits for domestic economies and corporations are huge.

European Commission landmark communication for Parliament, Commission and European Economic and Social Committee and Regional Committee entitled "Towards a Circular Economy: A Zero Waste Programme for Europe", published in 2014, emphasizes that circular economy systems should maintain product's added value for as long as possible, while avoiding the generation of waste. This means that the waste produced in circular economy can be efficiently used further on creating additional value. The repeated used of a primary resource mad its by-products limits the amount of waste and reduces dependency on unreliable supply, increasing the economy's resilience and competitiveness.

Circular economy is considered to be one of the main tools available to ensure economic efficiency, reduce natural resource usage, ensure efficient recycling, and pollution reduction, alleviating the considerable costs found in manufacturing sector and solving problems that are found when manufacturing linearly.

Economic competitiveness factors

Scientists pay attention to economic competitiveness (Porter 1980, 1985, 1990, Snieška 2008 etc.). The popularity of macro-level national competitiveness has grown because of globalization, economic integration and rapid development of information technologies. Scientists' articles do not have a common approach to competitiveness, because of its complexity and can be measured according to several parameters. Scientists analyse competitiveness in levels of the state, city, industry, company, product, or service (Beniušienė, Svirskienė 2008).

The country's competitiveness, in many research sources, has been described as a national interest; its main objective is to raise the income of the country's habitants.

Analysing country's competitiveness, comparative analysis helps to assess the country's position in relation to other countries. It is important to identify the object and factors which characterize it.

When identifying characterizing competitiveness factors, scientists prefer to use Porter "diamond model" (Fig. 2). According to Porter (1990), "diamond model" competitiveness is perceived as the country's ability to create an environment to help business grow and innovate faster than foreign countries. Porter expanded the concept of competitiveness, which includes a number of factors, distinguishing productivity as a key factor to the success of the state (National Competitiveness Council). Circular economy helps improve industrial sector's productivity and economic growth and leads to state-level macro-economic competitiveness. This means that circular economy can be identified as one of the competitiveness factors.

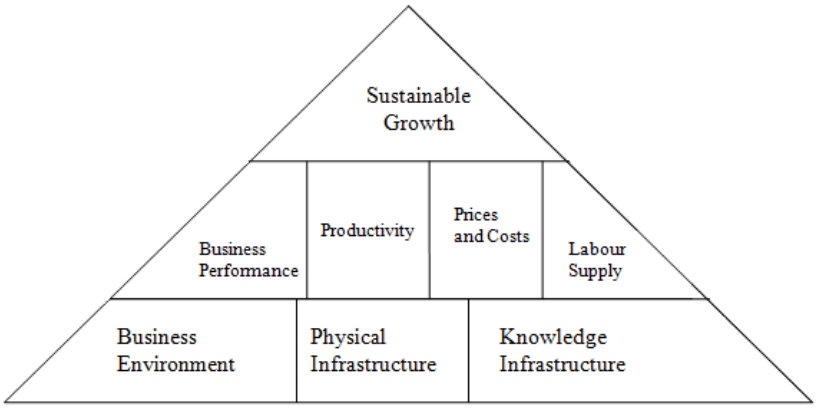

Fig. 2. Competitiveness pyramid

Sustainable growth of living standards is the guarantee of competitiveness on the top of the pyramid. Lower level contains essential conditions for the competitiveness of business results (trade and investment), output, prices and costs as well as labour supply. These factors are considered as state competitiveness factors. The lowest level of the pyramid covers policy contribution which includes three key areas for future competitiveness: business environment (tax policy, regulation, financial and social capital), physical environment (energy, transport, information technology, real estate etc.) and knowledge infrastructure (scientist research, education, skills, training etc.).

Every year, the World Economic Forum presents the Global Competitiveness Index, which includes various factors' averages. The Competitiveness index component is divided into 12 economic competitiveness factors that helps to assess countries' competitiveness. In 2014-2015, the Global Competitiveness Report emphasized

innovation and skills as mains economic growth factors (The Global Competitiveness Report 2014-2015).

The Factors are grouped and combined into the main determinant of competitiveness clusters in the Global Competitiveness Index Report like this:

1. Political stability, implementation of laws, effective legal framework, transparency in government activities;
2. Infrastructure: transportation development, education, accessibility and quality of services;
3. Macro-economic stability, fiscal and monetary policy, public finances;
4. Social environment: public health, quality of health care, social welfare, renewable energy, environmental situation;
5. Education: primary and higher education, higher education, personnel training;
6. Finance market: banks and stock markets, availability and reliability;
7. Technological improvement: innovations, information and telecommunication technologies availability and using;
8. Labour market: labour market efficiency and flexibility, legal regulation of labour, productivity;
9. Market size: scale economy, market openness, export, import;
10. Business modernization: business and science partnership, clusters, effective production.

According to Porter (1998), the states' well-being is created by its economic activities. State's ability to effectively utilize its available natural, technological, infrastructural, human, social and other resources is important for state competitiveness.

Value chain in the circular economy

Value chain can be defined as the set of activities required to design, procure, produce, market, distribute, and service a product or service (Emblemsvåg, J. 2003). M. Porter's value chain can be used for circular economy implementation. Porter's model has five main activities that create direct value. These are internal logistics, production, external logistics, marketing and sales, services. There are also four complementary activities that complement the value-creation process: organizational infrastructure, human resources, technological development and resourcing (D'heur 2015).

Value chain management (Fig. 3) helps integrate manufacturing, transportation and demand processes, ensure suitable waste recycling and use. Value chain management is defined as processes' integration between the supplier and the consumer. Added value is created when a product moves in the value chain (Sližienė, Zaukas 2013, p. 59).

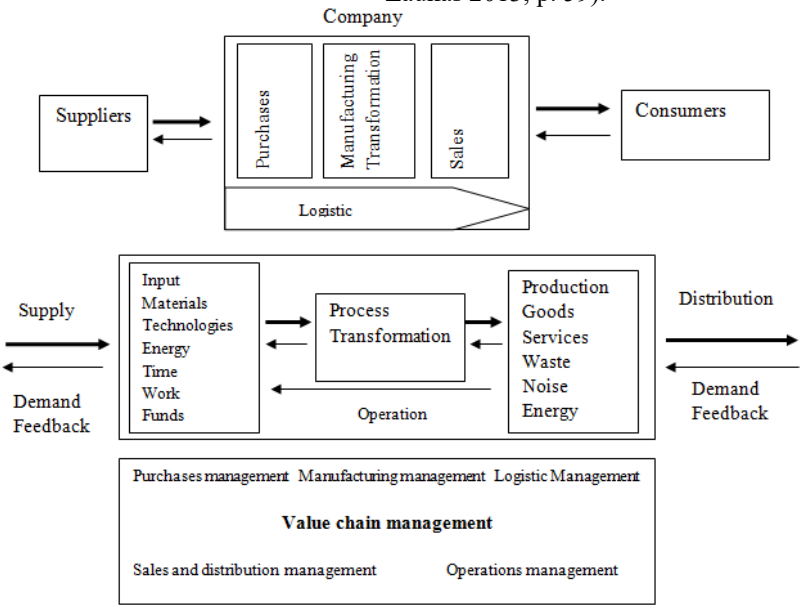

Fig. 3. Value chain management (Sližienė, Zaukas 2013)

Value chain costs must be related to customer value perception. The implementation of circular economy contributes to increased production efficiency, recycling and reuse of waste to ensure higher product quality and lower costs.

One of the main driving forces of economic development is the manufacturing sector. Continual technological development of manufacturing helps to reduce costs and improve the quality of products and services. Improvement is usually seen within the value chain as a value-added activity. Value is often regarded as profits or productivity (Wang, K. et al. 2006).

The waste management process also has inputs and outputs. The inputs are raw materials (natural resources) and energy, while outputs are useful products or waste. Fig. 4 shows the environmental aspects of the product realization link of the value chain based on theoretical assumptions. Waste, raw materials and semi-finished products are understood as costs in the value added process and they are necessary in manufacturing. Products, semi-finished products, or waste are thought to be the output at the end of manufacturing. They will be used for recycling or other manufacturing processes.

Waste that cannot be recycled or used anywhere else is considered to be final waste (Emblemsvåg, Bras 2001).

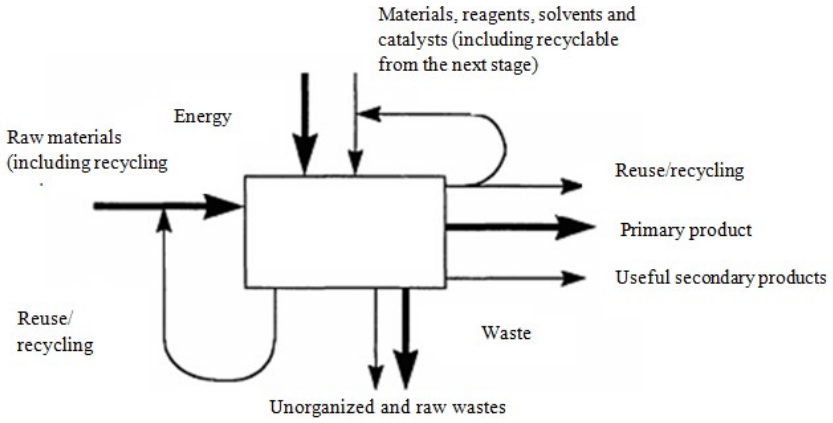

Fig. 4. Relation between environmental aspects and product realization (Emblemsvåg, Bras, 2001)

According to the Porter, the value chain is related to the value-creation process – from raw materials production to end-use products and services. Based on this definition, value added chain does not include the dismissal, recycling or reuse. Circular manufacturing can be included in the value chain. Value chain is based on today's cost control principles. These principles should be used while implementing environmental goals and programmes. Given the environmental and value chain principles, we do not know what impact to environment suppliers have. In today's society, environmental measures such as energy consumption and waste is understood as a cost rather than potential income (Emblemsvåg, Bras 2001). Waste is a considerable resource and the final product in the value chain. Waste can be recycled in other manufacturing processes to become a raw material again. Because of the possible reuse its constant renewal possibilities, waste occupies an important place in the process of generating added value.

Circular economy possibilities

Waste is considered as a renewable resource and its quantity continuously grows every year. Waste recycling and manufacturing possibilities are not fulfilled. Our society starts to realize waste's negative impact to the environment and starts looking to wastes as one of the manufacturing or energy production resources. It helps to deal with a few problems: to reduce pollution, recycle waste, improve renewable resource use, implement innovations in manufacturing, and ensure continuously growing economy.

Circular economy requires changes in all manufacturing processes: from product design to use. It also leads to new business models for the emergence of waste as a raw material, as well as consumer behaviour. In any case, circular economy cannot completely eliminate the linear manufacturing, since it still needs primary raw materials and generates final waste that still has to be disposed of.

Scientists have estimated that global implementation of the circular economy would bring about $ 1 trillion of real income in the world. UK circular economy would help to create a 3 billion pounds of GDB and over 50 thousand new jobs (Hayler J. 2014).

According to European Union experts' calculations, if existing resources were used efficiently in the whole production chain by 2030, the raw materials needed for production would be reduced by 17-24%. This would save around 630 billion euro per year and help to reduce the volume of waste (Europos Komisija 2013). Circular economy implementation is considered to be one of the sustainable development implementation tools, which would reduce environment pollution, the usage of primary natural resources, while also raising the state's economic and social well-being.

It was estimated that every year, in Europe, about 3000 million tons of waste is generated (Waste generation and management), one European generates about 481 kilos of waste every year (Waste: a problem or resource?). According European Environment Agency data in 2012, Lithuania generates about 469 kilos per capita of household waste, while in 2004 this number was lower and amounted to 373 kilos per capita. The continuously growing volume of waste, its removal and recycling becomes a problematic area in all states.

More and more waste is being recycled and less goes to landfills in Europe. Municipal solid waste recycling and composting has risen from 31% in 2004 to 41% in 2012. Although this is the high rate, analysis of individual countries shows big contrasts: for example, in Germany, Sweden and Switzerland municipal solid waste in landfills averages about 1-2%. Meanwhile in Croatia, Latvia and Malta, municipal solid waste in landfills averages around 90%. In Romania and Bulgaria this number goes up to 100%. Most of the countries with a low percentage of landfill has a high recycling, composting and energy production percentage – about 30% (Waste: a problem or resource?). States that do not recycle waste can export it. This helps improve state's economy and implement circular economy.

The best example of implementation of circular economy principles is San Francisco, CA, Sweden, and Norway.

San Francisco is considered to be one of the world leaders in recycling. While most of the United States overall recycling rate is low at only 34%, (Sweden needs more…). San Francisco has reached a 77% waste diversion recycling rate. This has been achieved through the implementation of an integrated three steps approach: waste reduction legislation implementation, cooperation with waste management companies, and the development of new recycling and composting programs, which promote recycling and composting culture creation through. San Francisco's „zero waste" recycling program has been implemented gradually since 1989. At that time, an integrated waste management act was adopted. Up to 1995, it helped to increase municipal solid waste recycling up to 25% and 50% up to 2002. During the last two decades of this policy being in effect the city's administrative authorities have adopted a series of laws and decrees that have contributed to the promotion of recycling. The city has decided to implement a city-wide composting collection in 2001. A year later, in 2002, city has raised the objective to achieve 75 % waste recycling by 2012. Construction's demolition scrap recycling ordinance was released in 2006. In 2007, it was decided to reduce the waste generated by the food sector. In 2009, the city has made a decision on mandatory recycling and composting. In 2010, it was decided to reduce plastic bag consumption levels. During the whole decision-making period, recyclable waste volumes grew rapidly and it is double the US waste recycling rate (Fig. 5) (Gokaldas, V. 2012).

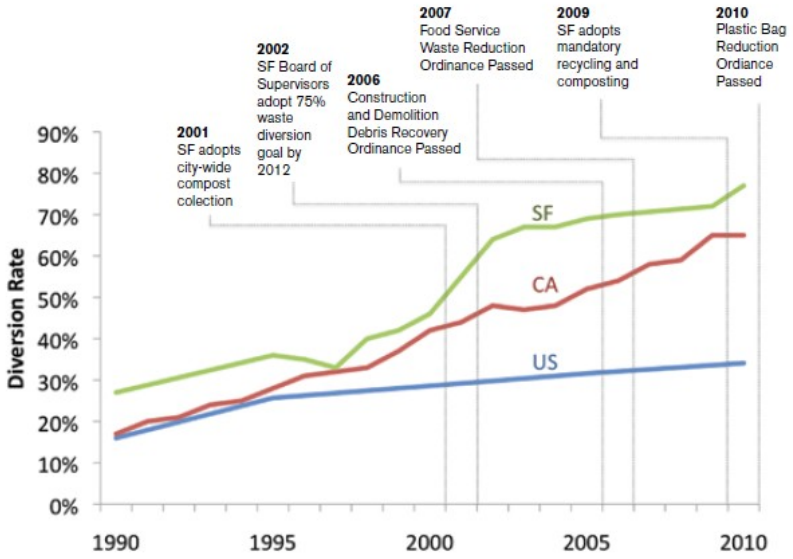

Fig. 5. San Francisco waste legislation and diversion rates (Gokaldas 2012)

San Francisco implemented an integrated waste management policy, which states that nutrition and vegetable waste is composted waste which is suitable for recycling. It is sorted and reprocessed. Other kinds of recycled waste is used for heat, electricity, or biofuels.

Integrated waste management policy has contributed to the new import and export trends popping up. Trade volume growth last year was very rapid. States specialization on the levels of economic sector activity on a national and regional level increase the volume of trade (Burinskienė 2014). Today, economically strong countries are characterized by high public focus on waste imports to meet recycling waste production needs. They also encourage countries incapable of recycling waste to export tit to other countries.

The cases of Norway and Sweden are worth separate analysis because of their high imported waste percentage from other Europe countries. Norway and Sweden see a big potential in waste recycling. These countries' waste recycling rate is up to 99%. Every year, Europe still landfills almost 150 million tons waste. It is a huge number and an enormous potential business opportunity for countries with high waste recycling rates. Today, Norwegian and Swedish waste recycling companies are able to process larger quantities of waste than now, given the potential to grow in the near future. Thanks to increased recycling opportunities, these countries can import waste as a raw material to fulfil their potential recycling and energy production potential. Sweden recycled over 550 thousand tons of imported waste in 2010. This number increased and in 2014, it recycled over 800 thousand tons of waste (Brow 2015). Sweden recycled over 2 million 270 thousand tons of waste in 2012 (Towards Zero Waste). Given the fact that European Union policy tends to work towards reducing the number of landfills and their complete abolishment, the potential recycling industry growth rates are high. At this moment, Oslo recycles over 410 thousand tons of waste per year, of which, 45 thousand tons of waste is imported from the United Kingdom. This is useful for countries which find it cheaper to export waste to Norway and pay for their recycling than to maintain their landfills (Russell 2013). These Scandinavian countries fully exploit their possibilities in energy production, waste recycling and composting.

Conclusions

Circular economy helps to improve manufacturing productivity and ensure continual economic growing. It is important to implement integrated waste management policy in the circular economy context because of waste crisis, low productivity and rapid exploitation of natural sources. Circular economy includes manufacturing and consumer sectors, systematically reduces emission of waste, and encourages waste recycling to raw materials, as well as energy production. Circular economy can increase the efficiency of the production scale.

Circular economy can be used as a tool for country's competitiveness. Porter's diamond pyramid helps to find ways to use sources more effectively. Innovations in the manufacturing sector can ensure high productivity and maintain principles of sustainability, reduce resource costs, help to create new jobs. Circular economy encourages the formation of business and physical environment, develops the knowledge infrastructure.

Porter's value chain helps to integrate production, transportation, and demand processes, ensuring proper waste processing and utilization. Waste is considered to be raw materials and final products which can be recycled in other production processes and became raw materials in the value chain. For their re-use and constant renewal, they occupy an important place in the value creation process.

Waste use as a raw material in manufacturing and energy production can resolve environmental issues and reduce the increasing amount of waste in the world. Countries that implement an effective waste collection, composting and recycling policy are faced with another problem – the lack of waste in their own countries. This problem birthed the need for waste trade. Countries with high waste recycling rates and production capacity, such as Norway, Sweden, Germany, and Switzerland, import waste from countries such as United Kingdom, Italy, and others, which find it financially convenient to export their waste.

States with high percentage of waste (Malta, Bulgaria, Romania and others) in landfills will specialize in waste export. Countries with a high rate of recycling will focus on waste import to meet their production and energy capacity.

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SYNERGIES EFFECTS OF CLUSTERISATION PROCESSES: BIOMASS CLUSTER CASE

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Annotation
This research aim is propose prevailing biomass cluster model and explore synergy effects, which initiate cluster activity. Authors propose foreign countries experience to develop biomass clusters, indicate such type cluster structure, who dominate various countries. Also indicate main ranges, which making researches, related with biomass clusters competitive and benefit creation increase. Systemize all information prescribe synergy effects, which comprise developing biomass cluster, when therein participate business and science institutions. Herewith highlight benefit, who biomass cluster activity gives business and society.
KEY WORDS: *competitive ability, clusterization, biomass cluster, synergy effects, multiplication effects.*

Introduction

Recently develop countries observable development of new interorganization business connects – members of different markets collaborate huddle on clusters. Clusters can be concerned with production, services or operate composite principle. Clusterization processes various aspects analysed Porter (1990, 1998, 2000, 2003), Bildirici, Ozaksoy (2013). Developing renewable energetic, begin formation biomass clusters, who assist more rationally supply energetic needs of regions. Clusters actions and allot benefit are versatile, so it lets achieve various synergy effects, which feel various society groups and subjects. Business synergy effects analysed Buzzell and Gale (1987), Milgrom, Roberts (1995). However, clusters synergy effects, especially biomass clusters, in fact aren't exploring.

Though various business sectors exist analysis examples of synergy effects, but biomass clusters their investigation is fairly little, because great part old develop countries, yet not fully merge at biomass use in energy production processes, and not be demand detail explore the benefits of biomass clusters in his members and society. Other countries, biomass market is not yet fully form. Clusters develop process in this countries become a difficult process, which be slow rate and create less benefit nor can give at this moment.

Novelty of the study: Authors' research indicates, that biomass cluster gives a synergy effect. The last-mentioned divided cluster members, the significantly enhance their competitiveness. Synergy effects divide mechanism is difficult, contradictory and few investigate. Therefore study authors thought given expedient introduce particular parameters and indexes, which relieve this process and bring on this process more clarity. Also authors found that multiplication effects can approach how the specific forms of synergy effects.

Object of the study: Biomass clusters synergyzation

Goal: investigate synergy effects, dominant on biomass clusters.

Objectives:

1. Describe biomass clusters in Europe countries;
2. Investigate biomass cluster structure;
3. Identify clusterization processes synergy on biomass clusters.

Biomass clusters development in Europe countries

Biomass resort in Europe constantly grows. This relates to improved and cheapen biomass using mechanisms, which can get produce heat and electricity. More on biomass resort currently invest Austria, Finland, Germany and United Kingdom. Constant investment in sector proceed large renewable energy resort system possessed Denmark and Sweden. Over this countries may attach few Organization for Economic Co-operation and Development (OECD) countries, primarily the USA, who engage actively biomass using of the remaining world. Less-developed countries significantly expendable nascent agribusiness wastes (Bildirici, Ozaksoy, 2013).

Recently in Germany develop all renewable energetic kinds, including various biomass types using on energy production. Widely expendable wood wastes, straw, biological liquid wastes. They comprised from animal faeces and wastes, available from cereal cultures. Biomass is most expendable renewable resource in this country (Konig, 2011). In Germany exist wide-ranging biodynamic cluster, whose aim is more effective use wood and other biologic wastes, that there can create better value added. Cluster have 50 subjects – companies, institutes, and other science agency (Germanian bioeconomic cluster, 2015). Cluster researches can help effectively use nascent wood wastes, reduce to atmosphere pass CO2 emissions, also create additional

value added to the country's economy, because using local resources.

In France wider biomass resort concerned with row of factors. Biomass resort not only heat produced, but earned by way of creating a new product, concerned with constructional, high-tech, food sectors. All of this made a separate business markets and warrant country and her regions sustainable development (Thomas, 2014). At this moment France about 20 % energy make from renewable resources, and most part belong a biogas. In country operates at 71 clusters, which concerned with biomass resort and innovations. This structures doing scientific researches, engage biomass production and resort, export knowledge and equipment into foreign countries (Netherlands enterprise agency, 2014). French biomass clusters distinguish a characteristic participate international associations, who goal – unfold sustainable development idea and expand biomass resort that much energy production, also create and developing other manufacture parts.

In Italy biomass clusters operate fairly large extent. Most biomass company's alliance unifies over 300 companies, which active biomass fatigue and resort sectors (Francescato, Negrin, 2013). Italy action to use biomass and their wastes additionally stimulated European Union (EU) directives, which indicated enhance energy production from renewable resources. Necessary emphasize it, that Italy is one most wood import country, then important place on cluster fall a wood import companies, which country provide a biomass. To use biomass Italy amount same purposes how other countries – to enlarge benefit of sustainable development, saves the environment and give benefit from suitable waste resort (Manzone, Airoldi, Balsari, 2009). Important place in the sector gets an energy plant, which assist warrant continuous local stock and assist necessary energy production power (Cosentino, Copani, Patanè, Mantineo, D'Agosta, 2008).

Develop European countries experience create biomass clusters and end grow value added when remake biologic and wood waste currently expendable less-developed countries. At Latvia biomass resort is more, neither other Baltic states – country have much wood waste, also is much not renewable peat resources. Latvian biomass business companies flock into clusters for a few reasons. First and foremost reason, Latvia promote small power-plant creation, then they need resource, mechanisms, and cluster help solves nascent challenges. Significantly maintain new biogas power-plants, who can together produce both heat and electricity, to use faeces and animal wastes. Also promote biomass from agricultural wastes resort – to use straw, osiers. Together with the cluster creation it is oriented to rural territories involvement in economic processes, to solve their social problems. Herewith diversify agricultural sector, rear various plants, able provides power-plants more thermal firing. 2012 m. in Latvia work 37 biomass power-plants (Melece, Krieviņa, 2014). Recently Latvian company's usable industry production pending nascent wood waste, who later become heat and electricity. Large biomass usable is North and West Latvia regions (Melece, Krievina, 2015).

In Poland recently also observe cumulative biomass resort, though main energy production part is concerned with carbon use. However, their apparent single initiatives, develop just particular energy clusters components. Nevertheless, Poland, same as Latvia, seeks similar purposes – help rural territories enhance economic and social welfare, also enhance the growth speed. Also absorb EU Directive of Sustainable development principles. Poland significantly more than Baltic States use straw – particularly large their resort potential is north and mid-Poland (Berggren, Ljunggren, Johnsson, 2008). Emphasize biogas resort, but all action is singly and about cluster creation is not involved. Emphasize, that growing biomass resort will help warrant country sustainable development opportunities and rural territory growth (Bielski, 2015).

Romania is one in the poorest country in the EU, but country apparently declares, that need keep sustainable development principles when create a new energy policy. Biomass resort in the country not yet very active, but exists energy cluster, who inclusive water and geothermal resources parts. In cluster subdue energy producers, mechanism suppliers and science institutions. Central Romania exists biomass cluster, who unify biomass production, adaptation, consumption companies. In 2011 founded Romania Cluster organization, who coordinate and maintain all work of active clusters and clusterization principles practice (Benedek, Cristea, Bartók, 2013). Basic biomass cluster resources concerned with biomass wastes resort. Cluster purpose is to encourage national and multinational collaboration and apply sustainable development principles. Now cluster has 38 members (Romanian biomass cluster, 2015).

Currently, biomass clusters is slightly, but all of these clusters is apparently orient to sustainable development security and new fuel kinds researches. Huge meaning affords a science institution and waste, who can use how fuel, intended energy production. Countries unify general principle – extensive biomass resort is close-knit with rural territories development incentive, because in these territories can create new work places, who be commit less qualification village peoples. That lets achieve maximum benefit in country economy, because complex solves economic and social problems in this vulnerable regions.

Biomass clusters structure

Biomass clusters by his structure is similar to other clusters, because cluster made basic and supportive elements, who can be oriented to local or foreign market needs appeasement. Mostly biomass clusters involve raw produce, resort and mechanism create ranges. Discernible wide collaboration with scientific institutions, when she suggests innovations in the sector, so more enhance cluster to create benefit for cluster companies and society.

Observable divers biomass cluster modifications, however widely common this structure, when biomass cluster made four elements (Ministry of Economy of the Republic of Lithuania, 2012):

1. Wood biomass source;
2. Biomass producers (wood granule, briquet)‘
3. Market, who use biomass;

4. All elements should be sited near each other.

It is important that the emerging biomass heat sector be efficient and competitive from the beginning. Transportation is a key component of a biomass project, and projects with long transportation distances increase risk and lower the chances of getting built. By grouping projects together and lowering transportation costs, projects are more resilient to rising fossil fuel prices. The cluster strategy will create more attractive investment opportunities and ultimately improve forest health, create local jobs and help rural communities be more energy independent (U.S. Department of the interior, 2012).

Cluster involves all business chain, which main parts are raw materials supply and resort. Basic cluster plus is it that cluster can work in a local environment, but separate cluster products can supply other regions or countries.

Cluster market, who use biomass, asserts in various aspects. If usable heat, market is local – generally it a town or town type locality. If usual or cogeneration manner produces electricity, the market can develop from country to foreign markets, because the electricity supply wide hereupon situated country residents demand.

Herewith biomass clusters occasion, often geographical position is not necessary, because biomass are easily transported material. Also biomass equipment producers dispensable be in separate regions, because both equipment installation and observation can do expeditiously. However, on purpose a profitability and appreciate other objective cases (biogas and their components resort in locally) need try, that basic biomass raw centers will be wherewith locally cluster core.

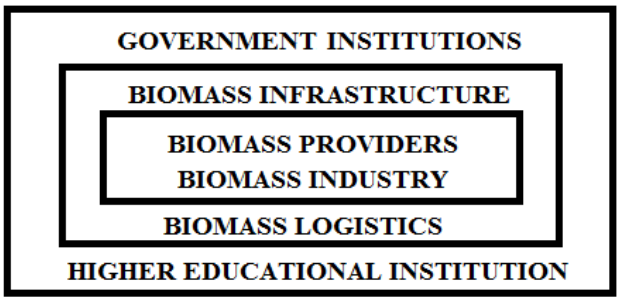

Fig. 1 Simplified biomass cluster structure

Biomass cluster core is biomass providers and biomass industry subjects – biomass cauldron, equipment producers, construction and exploitation subjects. Second layer operate service structures – infrastructure concerned with the necessary electricity transmission system, also biomass logistics companies. Policy dictates government institutions, and higher education institution's purpose – search more effective cluster work ways, enrich him innovations.

Alternative energy using tendency, biomass resort and with this process concerned researches are increasing. Scientists exclude substantial ranges, which concerned with basic biomass researches objects.

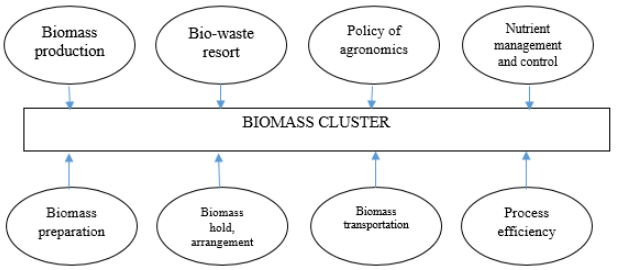

Fig. 2 Fundamental biomass clusters research areas

Noticeably, that scientific research ranges give a synergy effects formation basis, because biomass cluster can help solve problems, concerned with biomass and waste resort. Herewith cluster can help form an agricultural policy – there, where farming is insufficient explicate, or him disturb geographic circumstances, can rear energetic plants, intended heat and making electricity.

Biomass clusters relation with other clusters is sufficiently versatile. Basic energy clusters purpose – provide regions and countries necessary energy amount, who later usable home or business purposes. Energy clusters difference the fuel type – can dominate fossil fuel or renewable fuel using clusters, also their supply structures.

Biomass cluster is sufficiently versatile structure, inclusive different fuel kind, which generally is waste form and exist in every country. Active cluster obtains various synergy effects, which feel that own cluster, that his partners and working environment. In this instance biomass clusters perform clearly social function – promote at environment clean and use already needless resources. However exist and other benefit forms, which create synergy effects and economic avail.

Clusterization processes synergies effects in biomass clusters

Synergies effects in biomass clusters are more wide nor ordinarily, because biomass cluster can essentially replace both several region and all country economy, seeing that cumulative energetic independence emerge opportunity finance, committed energy import, invest other purposes. Companies, involved in cluster, also feel the large financial benefit, because they involved one of the most underlying business – energetic business, - which necessarily warrant other business functions.

When creating various type clusters always desirable tangible benefits, who show growing profitability and customer's amount. Clusterization also help achieve other goals – affect company culture, enrich her modern management solutions. Discernible this cluster affords benefit their members (Skaržauskienė, Gudelytė, Lančinskienė, 2014):

- When operate together, cluster companies have more opportunities, enhance productivity nor operate individually;
- Clusterization assist enhance no one company, but all sector competitive abilities;
- Together with entrepreneur perception, create opening for innovations.

Milgrom and Roberts (1995), reference „grid“ and „supermodular“ theories indicated, that some organizations works is given connect, add each other and enhance either input, a obtain synergy effect. Cluster is good environment achieve synergies effects, because clusters purpose is acheved more value added creation when coordinate several companies work.

In common meaning, synergy effect can evidence various forms. Mostly prevalent – linear effect – it is a synergy, resultant from additional or wide resort phenomenon. Also not a few scientists attention attained newly emergent characteristic phenomenon, when several parts, collaborate to whole, have a new, theretofore lack characteristics. In management context, relevant is functional addition, synergy, often encrust with newly emergent characteristics (several parts, in function add each other create much more effect); functional convergention (work-sharing, to treat market than whole); risk and costs division, information division (Kvedaravičius, Narbutienė, 2005).

Main synergies effects in biomass clusters relate to diversified increase, inclusive separate activity direction. Diversify increase strategy essence – business company work amount increase and financial result betterment, when enhance strategic business work number, when nearby works reclamation new works or redistribute resources between available business works and new reclamation (Gargasas. Mūgienė, 2012). In biomass cluster case synergy available then, when increase both wood and biologic waste adaptation to heat and electricity. Herewith pending country burning problems, as waste arrangement and environmental condition amendment. Hereupon be resource redistribution from the pollution energy production of renewable resources maintain energetic, grow energetic independence.

Diversify increase strategy can be (Gargasas. Mūgienė, 2012):

- Concentric, when business company tries for better final result, assimilate new business activities, near available by using resources and technologies, with an eye to the synergy effect of business activities industrial elements adjustment;
- Horizontal, when assimilate new business activities, near available by market segments and marketing system, with an eye to the synergy effect of business activities marketing elements adjustment;
- Conglomeratic, when assimilate new business activities, which devoid connection with available business activities, and doubt clear synergy effect.

Biomass clusters help create synergy then, when use all basic cluster raw resources, and nor remain a waste. Basic biomass cluster advantage in economy concerned with the disused waste resort. Expendable agricultural wastes help solves impurity problems, safe surface-water resources. Herewith synergy display, then, when try connecting various subjects types. If development is sustainable, then achieve environmental gain, which increase clusters create synergy effects influence of country, regions and clusters members

When explore the cluster synergy effects, be particularly important exclude productivity increase factor. Because cluster members are oriented to one purpose and activity opportunities they find in concentrate, productivity increase equally and coherently, because the workload and order allocate equally between cluster members. Meanwhile, when increase competitive, that increase company's income and importance in sector.

Everybody business structure innovations play an important role, because they help business survive competitive. Clusters help achieve more value added creation, when underway available activity. Organizations business models internecine collaboration can contribute in their innovation growth, and this formation and encourage new integrated worth create, synergy effect extraction and better competitive (Kinderis, Jucevičius, 2013). Instance synergy help cheapen innovation installation costs, herewith apply her wide clients circle, connecting companies, which participate cluster, customer segments. Innovation costs can cheapen, because more companies develop same innovations, and that help both cheapen innovation costs and enlist new customers, who emerged when cluster companies coalesce to one formation.

Clusters gain is not only economic, but can promote at social partners create benefit. Financial and technological cluster member’s success contribute at community interest’s appeasement: incomes, additional work places, social welfare create and general economic growth, which is upper nor non-clusterization regions (Bernat, 1999). Clusters can help include more number of various qualified representatives, who can use their knowledge and resources general welfare growth. When economic situation is ameliorative, additional finance, receive from taxes can invest to infrastructure amendment and other implements, who help amendment social situation.

Working in cluster often backed-up synergy effect seek logic. Companies, which collaborate to cluster have better opportunities achieve resources expendable and basic business knowledge exchange efficiency.

Exist and other types synergies effects. One of there is spill-over: even then, when this activity is not separate, business in cluster often affords an indirect benefit from marketing and resource development costs, receive in related business (Kvedaravičius, Narbutienė, 2005).

Namely synergies effects expression and assumption get a synergies effects perceptible how substantial feature, illustrative developmental and advance processes all modern society living areas (Melnikas, 2013).

Systematize synergies effects, who is in biomass clusters, can invoke several factors, which operate different subjects, who is together closely concerned.

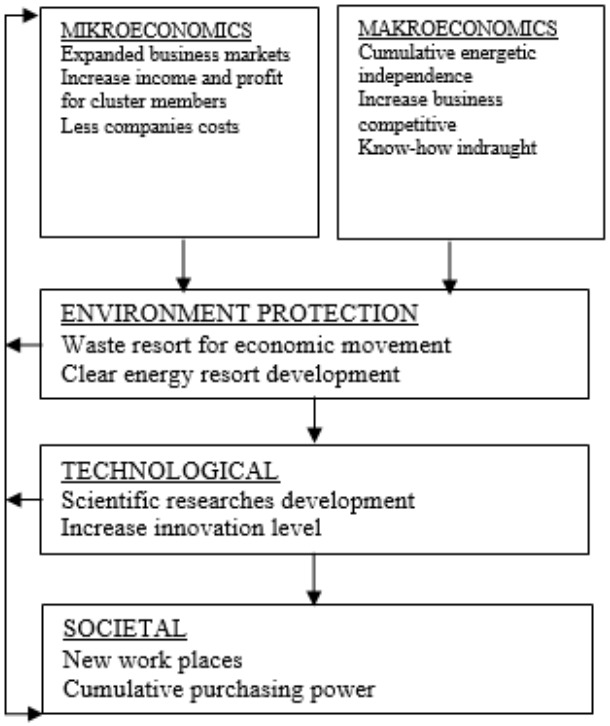

Fig. 3 Biomass cluster synergies effects

Most synergies effects group involve with economic factors. Cluster creates more economic gain both cluster members, country and society. Near economy effect apparent environment protection effect – from waste available ecologic energy, who expendable general energy demand supply. With the view efficiently energy production, which and get moreover economic gain strives to grow innovations amount, then underway scientific researches and create novelties. All factors together increase new work places creation and increase country citizens purchasing power.

Biomass cluster is comprehensively useful for the country, because not only solve economic and social countries' problems, but help companies create a stable and competitive system, who provide stable incomes and herewith contributory at new global trends – sustainable development incentive. In the future cluster activity can develop, because will emerge opportunities better use biomass and biologic waste. Herewith will grow research divisions, which create innovations for business.

Conclusions

This research indicate, that biomass clusters synergies effects is closely concerned each other and help create complex benefit for cluster members and society. Analysis indicate, that economic factors make most synergies effects, because of their come environment protection, technological, societal solutions, who assist biomass cluster success and creates more value added. Biomass clusters synergies effects significantly concerned with ranges, who is objects of scientific researches, because researches encourage more effectively resources resort, herewith enhance synergies effects plenty. Synergies effects can be concerned also with new business activities development, and marketing solutions it lets expand the available benefint amount and achieve more economic gain when doing current processes. Biomass cluster model made considering to environmental influence – this is a local model, who influence do government institutions, and it strengthens new scientific discoveries, who help achieve work effectively. Cluster activity is more rational than, when cluster operates in a local environment, when not be large biomass transportation and logistic costs. Made synergies effects scheme lets highlight biomass clusters creative advantage both business companies and country, herewith cluster form opportunities develop science and business collaboration.

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SUSTAINABLE DEVELOPMENT, ENERGY DEPENDENCY AND VULNERABILITY OF NATIONS

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Annotation
Since the UN conference in Rio de Janeiro organized in 1992, the sustainable development is the central question of the global, regional and national strategies. The requirement of that is defined in the main conference document „Agenda 21'. In 2012 the Rio+20 conference stated that there is a substantial progress in integration of the economic, social and environmental pillars of SD into strategic planning into many national development plans, transition into practice still remain a challenge.
Although generally accepted definition does not exist for „sustainable development", but there is consensus that it is a highly complex and complicated multidimensional process, which is aiming to reach and keep the balance between society, economy and nature for the well-being of future generations as well. There are different approaches and theories about the sustainable goals and the strategies leading to a better world, although there not even a precise, generally accepted definition has been set up for „sustainable development". In mind of the authors, the sustainable development is a progress with aim to lesser the long term vulnerability of economic, social and ecological systems.
There is a general consensus, that energy is the essential question in the sustainable development, since this business area plays a key role in every countries' economics, industrial production level, even significantly influencing social and private spendings – besides effecting the environment. Energy dependency of economy of countries increasing, and that is no matter they are exporters or importers. For example European Union the most of the EU countries are vulnerable to energy price shocks or energy supply disruptions.
As the world hydrocarbon supply is geographically concentrated in some regions the supplier countries will have key role in global economy and politics, but they economy is vulnerable as well. In the energy resources rich countries the economic performance has been influenced by oil and gas or coal revenue volatility (Mehrara, 2007).
Our study connects to this line, showing and analysing national development strategies of countries with different conditions. We will introduce three countries' (Qatar, Hungary and Lithuania) pursuit for sustainable development, who are standing on the two opposite sides of the fossil business, however, the motivation and the future goals have become the same for all of them.
KEY WORDS: energy dependency, renewable energy, Hungary, Lithuania, Qatar.

Introduction

There have been always challenges for the different nations of the world throughout the history. As the technology and life levels have increased dramatically in the last decades, the developed countries can focus on not only the actual problems, but they also look ahead in the future and concentrate on challenges on the longer terms. One of the most discussed and most significant area is how to reach sustainable economy and environment. There are different approaches and theories about the sustainable goals and the strategies leading to a better world, although there not even a precise, generally accepted definition has been set up for „sustainable development". In mind of the authors, the sustainable development is a progress with aim to lesser the long term vulnerability of economic, social and ecological systems.

There is a general consensus, that energetics is the essential question in the sustainable development, since this business area plays a key role in every countries' economics, industrial production level, even significantly influencing social and private spendings – besides effecting the environment. Energy dependency of economy of countries increasing, and that is no matter they are exporters or importers.

The transition may be stimulated by several factors from reliance on one major energy resource to another, which are interrelated (Solomon 2011). These factors are as follows:

- local or regional supply is depleted or not accessible,
- relative cost of energy source,
- climate and environmental aspects,
- technological change and innovation,
- geopolitics.

The order of these factors are different in different regions and is changing in time (Tverberg, 2013). In the EU in the last decade, the environmental aspects effected the national and EU energy strategies most strongly. Based on the last two years rapid changes, the energy strategies and actions are becoming more dominated by geopolitical reasons and by related risks of unstable supply.

In this paper, we will examine the fossil energy aspects, but we will focus on mainly the natural gas dependency and the coming sustainable energy transition.

Material and methods

In the following sessions, we will introduce three countries' (Qatar, Lithuania and Hungary) pursuit for sustainable development, who are standing on opposite sides of the fossil business, however, the motivation and the future goals have become the same for both.

The methodological approach is mainly descriptive. The analysis will be based on relevant statistical data from secondary sources from national and international literature.

Results and Discussion

In this chapter we will present the vulnerability of regions and their responses to the challenges.

Vulnerability of regions

Energy market related vulnerability is resulting from uneven distribution of the energy sources and consumption.

Since the first energy price shock in 1973, large number of academic literature and country reports have dealt with economic vulnerability of countries relying on imports for their energy needs. For example European Union (EU-27) is more than 50% dependent on imports for its energy consumption and it will be more than 70% in about 15 years (Paillard 2010). Energy dependency by member states of EU is shown in Fig. 1.

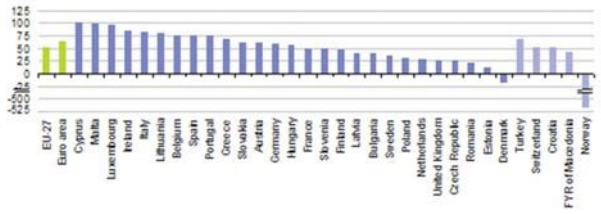


Fig. 1. Energy dependency of the EU member countries (Source: Paillard 2010)

Additional problem to the high import dependency of the EU is the geographically concentrated and non diversificated supply channels. As it is shown in Fig. 2., the EU's import quantity 14,4 EJ and from this 11EJ is coming from four countries only. The main suppliers are Russia and Norway (4-4EJ) followed by Algeria (2EJ) and Qatar (1 EJ).

As Russia is the main supplier of crude oil and natural gas as well, it means high geopolitical risks for the continent (EC 2010, Breevoort and Hagemann 2014).

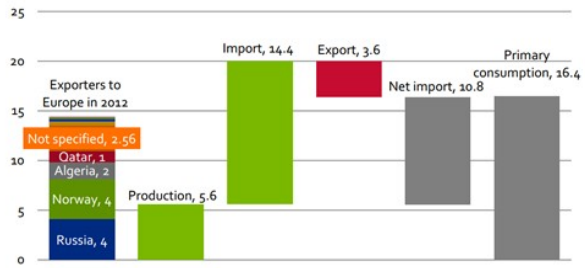


Fig. 2. Natural gas import, export, production and consumption of the EU in 2012 (EJ) (Source: Breevoort and Hagemann 2014, based on Eurostat 2014)

It has to be taken into consideration, that the world natural gas reserves are concentrated in some countries (Fig. 3.), limiting the purchasing diversification possibilities for importers. Russia and Qatar, only these two countries posses roughly three-quarters of the world gas supply.

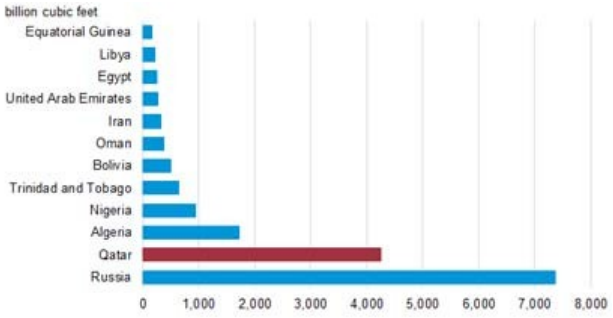


Fig. 3. Exports of natural gas by members of the Gas Exporting Countries Forum, 2012 (Source: U.S. Energy Information Administration, International Energy Statistics)

The dependence is two sided, as the energy export business contribute a large share of the GDP of these countries and any decrease in price or demand means a large threat to their economies, therefore manipulating the oil and gas market is a strategic weapon in the geopolitical game for both sides (Bosnjakovic 2010).

The changes of oil and gas prices reflect the economic and political situation (Fig. 4).

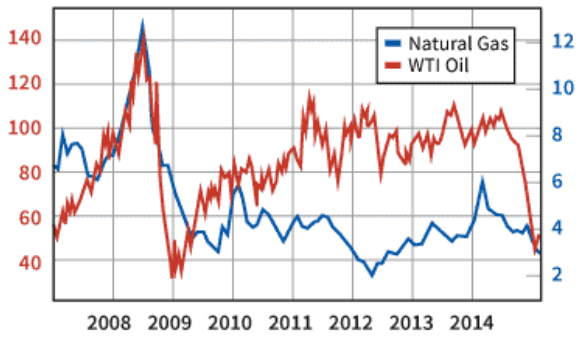


Fig. 4. Oil prices vs. natural gas prices 2007-2015 (Source: Mcguire 2015)

On the following chart, we can see the effects of the oil price decline, both on the importers' and the exporters' economies.

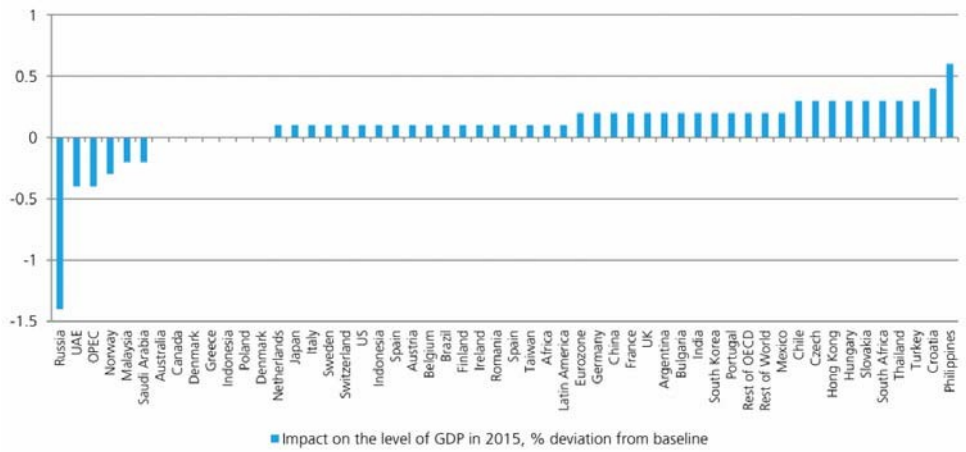


Fig.5. Impact on GDP levels after 1 year from a permanent USD 10 decline in oil prices (Source: Ro 2014)

Responses to changing situation

In 1987 the Brundtland Commission report published as „Our common future" defined the sustainable development as „ meeting the needs of the present without compromising the ability of future generations to meet their own needs" This idea has become the central guiding principle for policy makers from 1992 Earth Summit, which was hold in Rio de Janeiro where governments first agreed to prepare national development strategy based on the sustainable principles as a part of Agenda 21. Subsequently, the 2002 World Summit on Sustainable Development (WSSD) noted the lack of progress in implementation of sustainable development strategic planning. In 2005, the integrating of sustainable development into the national policies and practice became one of the main target in UN Millennium Declaration. In 2012 the Rio+20 conference stated that there is a substantial progress in integration of the economic, social and environmental pillars of SD into strategic planning into many national development plans, transition into practice still remain a challenge.

We briefly review the three states' responses to the energetic market's challenges. Hungary and Lithuania, the two energy importers with different dependency rates and one exporter, Qatar.

As Hungary and Lithuania are members of EU, their national energy strategies are influenced by the community's energy policy and regulation.

After the financial and economic crises which started in 2008, Europe has planned to choose moving forward and building the green economy, aiming sustainability.

This can be seen in the „The 2020 climate and energy package" published by the European Commission of the EU in 2008 (EC, 2008). This package is a set of binding regulations and legislations, which would ensure the EU to reach its targets by 2020 in the energetics field. These targets are also called the 20-20-20 targets, setting three key objectives:

- A 20% reduction in EU greenhouse gas emissions from 1990 levels;
- Raising the share of EU energy consumption produced from renewable resources to 20%;
- A 20% improvement in the EU's energy efficiency;
- Renewable energy targets for the nations, to enable the EU to reach its renewable 20% energy goal by 2020.

As we can see on Fig. 6, all of the EU member countries have been stepped ahead towards renewables and sustainability from their 2005 state and most of them are on the way to reach their targets by 2020.

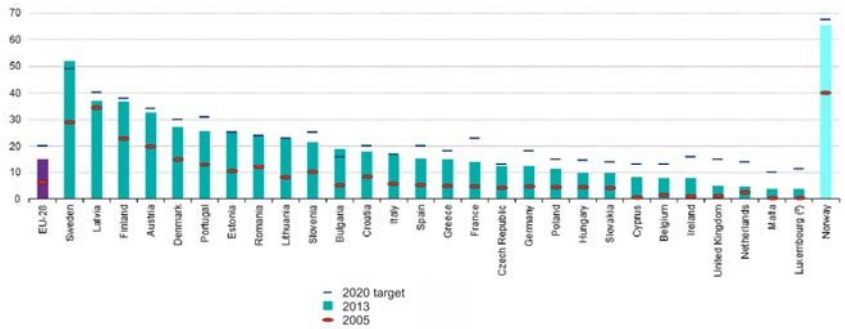


Fig. 6. Energy consumption from renewable energy sources (RES) in 2005, progress in 2013, targets for 2020 (Source: Eurostat 2013)

Responses of Hungary

The country is highly dependent on the fossil imports, 62% of energy need of fossil fuel comes from abroad. The energy mix is relatively well diversified, but the high share of gas (38%) coupled with a very high share of Russian gas imports, more than 80% of the country's total gas consumption is covered by Russian import (Toldi 2013, EC 2013). A mitigating factor is that Hungary has substantial gas storage capacities.

The high share of gas import means, that the country's economy is highly effected by fossil import prices, by the unstable availability, by the volatile domestic currency to the EUR and USD. The foreign policy's sensitive and important major task is always carefully securing the countries energy needs at the import sources. The Hungarian economical sustainability means not only environmental and green terms, but also means the absolute necessity for changing and securing energy sources by an increasing share from stable and safe renewable energy sources. The actual share of renewables in total energy consumption is only 8, 7 % (Toldi 2013). This low share of renewables is not only problematic because it is far from EU target, but Hungary also miss the job generation impact of this sector as well.

We can conclude, that the risky energy supply situation has been become a great force and motivation factor for changing the energy pattern and ease on the energy dependence.

However, in order to implement/generate significant changes, several resources and prerequisites are needed:

- capital and financing for enabling investments and technology development
- possessing appropriate know how and technology
- nationwide energy consumer and expert education.

The legislation supports to reach the objectives of the energy strategy of Hungary, the major actions are as follows (Ministry of National Development, 2011):

- Framing the Act on sustainable energy management;
- Improving energy efficiency;
- Increasing the utilization of renewable energies;
- Transport development;
- Utilization of domestic fuel resources;
- Environment awareness raising;
- Achieving industry development objectives;
- Ensuring the competitiveness of the district heating service.

Increasing renewables production, improving energy efficiency and securing alternative, potentially cheaper, natural gas supplies could reduce the energy trade deficit and it has a positive contribution to the GDP growth (see related data for Hungary in Fig. 5).

Responses of Lithuania

Lithuania has been among the most vulnerable countries in the EU in terms of energy supply safety. Due to the lack of almost any domestic fossil energy source, Lithuania's excessively had been relying only one supplier for oil and gas – on Russia. Between 2000 and 2009, Lithuania's import dependency has been high, but limited, moving between 40% and 60%, which falls in line with the EU average of around 50%. After closing down the last nuclear plant (2009), which was generating 70% of its electrical energy consumption, changed the position of the country from a net exporter of electricity to a net importer (EC 2013).

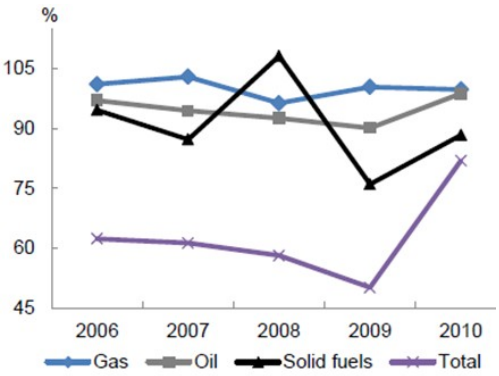


Fig. 7. Lithuania – import dependence (Source: EC 2013)

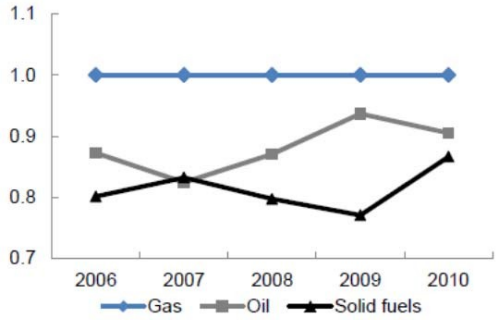


Fig. 8. Lithuania – HHI index energy import (Source: EC 2013)

In 2010, the import dependency increased to 81.9%. The energy suppliers all are non-EEA countries: 100% for gas, 98% for oil and petroleum products and 97% for solid fuels (EC 2013)

The government's objective is to progressively reduce dependency on the Russian energy import. Goal is to decrease the dependency from the present 80% down to 56% by 2016 and to 35% by 2020. These goals are converted into plans and actions stated in the National Energy Plan in 2010.

The strategic goal of the national development of renewable energy sources is to satisfy the energy demand from local resources to the possible maximum level. The objective of the development of renewable energy sources is to ensure that the share of renewable energy sources in the total consumption of energy would reach 23 % by 2020. To achieve this development, the following targets are set in 2010:

- increase the share of renewable energy sources consumed in all kinds of transport from 4.3 % of the final consumption of energy in the transport sector in 2008 to 10 % in 2020;
- increase the share of electricity produced from renewable energy sources from 4.9% in the country's total electricity consumption in 2008 to 21% in 2020;
- increase the share of renewable energy sources in heating and cooling from 28% in the gross final

consumption of this sector in 2008 to 36% in 2020, and to increase the share of district heating produced from renewable energy sources from 14.9% in 2008 to 50% in 2020 (EC 2010).

We can notice in Fig. 6., that Lithuania's has shown one of the quickest development among the EU states in increasing the renewable energy usage and by now has already completed the target set for 2020. Presumably, besides the many downsides of the energy import's vulnerability, it also forced the state to achieve the required changes faster, then other countries which are not that motivated.

In the present, Lithuania is mentioned as a good example for decreasing energy dependence, giving advices on how to increase biomass usage or how to launch liquefied natural gas (LNG) terminals to be able to source natural gas from other sources which come from the pipe (Ministry of Energy of the Republic of Lithuania 2015).

According to Vision 2050, which is projecting further then the Lithuanian National Energy Strategy and the EU 2020 plans, Lithuania will continue decreasing its vulnerability to minimum in the energy supply, as shown in Fig. 9.

Responses of Qatar: Sustainability and energy dependency

As Qatar is being one of the most significant player in the world as a gas and oil exporter, at first, aiming sustainable development in the country can seem odd – why initiate any steps towards changing the energy system and business, which makes the Qatar economy so strong.

But when we examine Qatar National Development Strategy 2011-2016, it can be clearly seen, that the decision makers realized, the worlds energy situation and technologies have started the changes, and what is now the strongest base and power for the domestic economy, can be later decreasing and be a risk for the later generations.

The reason for this, that Qatar is also a highly energy dependent country, where the international energy trends influence the country's GDP and developments.

In order to drive the changes, Qatar has decided to start all necessary actions towards its sustainable development and economy and has aimed to take a leading role in utilizing and developing renewable energies and technologies, start education programs and international cooperations and support developing new, energy independent business areas in its economy.

Compared to a weaker economy, where the investment and development possibilities are more limited, Qatar can make and effective and relatively fast development in the change of its energetics and economy structure.

Qatar is among the fastest growing states in the world. Qatar reached the highest GDP rate in the world in 2010, a rate that no other country reached. Qatar's economic expansion is based on the petrol and natural gas industry. The huge implication that Qatar experienced is due to higher oil prices.

Table 1. GDP using purchasing power parities, billion 2005 US dollars

1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	1990-2010
20.0	20.3	23.6	19.9	19.6	21.7	38.3	57.1	107.6	117.0	136.0	594.0%

(Source: IEA 2012)

Table 2. GDP per capita changing in Qatar

1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	1990-2010
20.0	20.3	23.6	19.9	19.6	21.7	38.3	57.1	107.6	117.0	136.0	594.0%

(Source: CIA World Factbook 2011)

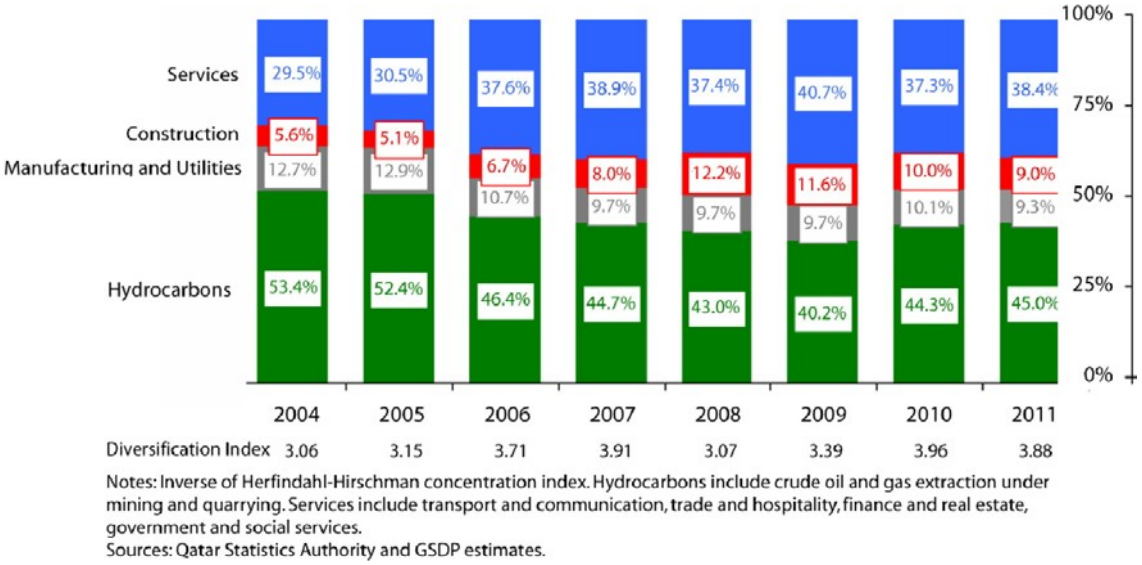
But overall we can assert that there is a strong correlation between government spending, or revenue and oil prices. Qatar does not want to rely solely on exhausted resources; therefore investments have been increased recently in foreign countries. Oil and gas still account for more than 50% of GDP; roughly 85% of export earnings, and 70% of government revenues.

Many countries blessed by resources have failed to prosper and develop. In Qatar the wealth is earned mostly from the oil and gas economy, but Qatar's future thinking set ground to diversify its economy to a knowledge-based economy by increasing knowledge and develop skills, technology and the related institutions.

Qatar is willing to create products and services which are able to compete in the world or rule the global market under the same sector. As we can see in the following the economic diversification slowly started in the last decade. The State of Qatar is willing to grow its potential strength besides hydro-carbon related products like transport and telecommunications, finance and real estate, trade and hospitality, manufacturing, government and social services, or constructions (Fig. 9).

Renewable energy presents opportunities for Qatar to enhance its future energy mix, conserve gas and reduce carbon emissions, once technologies become cost efficient. The greatest potential lies in solar energy, but other technologies may play a part depending on still-evolving technological and economic parameters.

In Fig 10, it can be noticed, that in 2013-14, the GDP growth which is coming from the sales of hydrocarbons are decreasing in a growing rate, showing the importance of the strategic planning for diversificating income sources of the state.



Notes: Inverse of Herfindahl-Hirschman concentration index. Hydrocarbons include crude oil and gas extraction under mining and quarrying. Services include transport and communication, trade and hospitality, finance and real estate, government and social services.
Sources: Qatar Statistics Authority and GSDP estimates.

Fig. 9. Diversification of output in Quatar
(Source: Qatar National Development 2011)

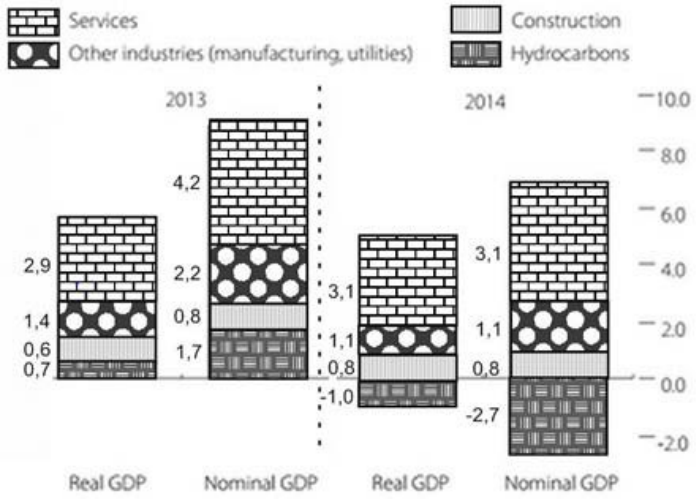


Fig. 10. Contribution of GDP growth in Quatar, 2013, 2014
(Source: Ministry of Development Planning and Statistics Qatar 2013)

The National Development plan of Qatar is also including the following targets:

- Study opportunities to lower gas consumption per unit of combined energy and water produced through enhanced dispatch.
- Improve thermal efficiency in power production.
- Advance the adoption of energy-saving technologies.
- Keep Qatar's green building code implementation on track.

Qatar emerges as the world's highest emitter (Table 3). The emission is highly correlated with the GDP. Qatar lacks forests and green areas to offset the effects of greenhouse gas emissions. Qatar is committed to working with other countries to address global climate change and to eliminate inefficiencies that raise carbon dioxide emissions. Qatar, like its neighbors, is highly vulnerable to the various shifts that may result from climate change. Qatar is among the 10 countries that would be most affected by a rise in sea level, which could damage coastlines and marine life.

Table 3. CO2 emission per capita basis

1971	1975	1980	1985	1990	1995	2000	2005	2008	2009	2010	1990-2010
2.2	4.9	7.7	12.1	14.1	18.7	23.7	37.6	49.8	56.4	64.9	361.7%

(Source: IEA 2014)

Conclusions

The three countries which are introduced here have set up similar road plans in order to drive the changes which are projected in the next 10-15 years. Behind the plans, the motivation is the vulnerability threat caused by the non-controllable restructuring of the energetics market. Those countries, which are feeling a more serious threat are forced to develop and realize the plans faster, then others who are less exposed to this situation.

The national strategic energy plans were made some years ago for the next decades. The question is, when will the present time's rapidly and dramatically changing political, social and economic world call for new plans and new actions to secure sustainability.

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SUSTAINABLE DEVELOPMENT, ENERGY DEPENDENCY AND VULNERABILITY OF NATIONS

S u m m a r y

The authors have focused on the energetics aspects of the different areas of sustainable development in this paper, introducing different strategic plans and actions of countries with high dependence from energy market – on both the importer and exporter sides.

The energy dependent countries – fossil importers and exporters both move towards to sustainable development, due the external pressure of economic processes, although they still planning to establish a growing economy and production. The energy sector has a multiplication effect as its modernization helps job creation, productivity and environment protection.

KEYWORDS: energy dependency, renewable energy, Hungary, Lithuania, Qatar.

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THE CONNECTION BETWEEN SUSTAINABLE DEVELOPMENT AND ENERGY CONSUMPTION IN THE EU, HUNGARY AND LITHUANIA

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Annotation
Since the industrial revolution with the increase of economic-, industrial- and agricultural production the pollution of the environment was increased not only in the air, but also in the natural waters and soils. As a result of the technological development and population increase the land use has changed. At the same time with the decreasing biodiversity the size of the area covered by forests has considerably decreased. Moreover, due to the economic development the demand on natural resources is getting higher and higher.
As the managing of ecological and economic problems can be realized by international collaboration only, several multilateral agreements have come into force to manage the connection between the energy-, economy-, environment- and climate policy to insure sustainable development.
In the interest of sustainable development by the ratification of the Kyoto Protocol 140 countries undertook to decrease and limit the emission in 1997. The improvement of energy efficiency, the protection of sustainable agricultural systems, the development of renewable energy sources as well as harmonizing the national policies were included among the suggested methods to combat global warming.
According to the Kyoto Protocol, ratified in 1997, the representatives of developed countries had committed themselves to reduce greenhouse gas emissions by at least 5 per cent below the 1990 level in the period 2008-2012. Taking into consideration the sustainability, the EU wants to ensure a 20% measure in its new energy strategy concerning three areas of energy utilisation. On the one hand, it is necessary to reduce the greenhouse gas emission by at least 20%, on the other hand the energy efficiency has to increase by 20% and thirdly, the proportion of renewable energy sources has to increase to 20% in the total energy consumption from the 1990 level till 2020.
The study focuses on the situation and changes of the energy market of Hungary and Lithuania among the states of the European Union with special emphases on the distribution and change of energy utilization in the European Union and the member states. As the sustainable growth is not separate from the change of climate- and energy policy that is why the article has special attention to the sustainable development and the role of renewable energy resources as key statistical indicators.
KEY WORDS: sustainable development, energy, European Union, Hungary, Lithuania.

Introduction

The climate of the earth has undergone significant changes in the last decades. Beside the natural climate determinant factors, human activity was proven to have participated in the changes. This is indicated by the frequency and increase of natural disasters getting stronger and stronger such as floods and droughts. Since the industrial revolution the usage of fossil fuel, the agricultural production, deforestation, energy production, industry and transport all contributed to the growth of greenhouse gasses in the athmosphere hereby increasing the average temperature of the earth.

As a result of rising temperature the area of arctic ice is decrease, the level of seas increase, the spread of pest and pathogens' hibernation and migration increase, the wintering possibility and place changes as well as the difficulties of adaptation of species can cause accelerating extinction. According to forecasts mankind is going to face difficulties in the case of water and food products. Beside the limit of natural resources the agricultural productivity of each country going to drop. The effect of extreme wether conditions substantial crowds may be forced to leave their homes to migrate areas what richer in natural reseources. All of the previously mentioned facts make the economic development more difficult.

These processes effect not only the EU but also all the countries of the Earth, all classes of society, the enterprises and the households too. To stop and decrease these effects collaboration is needed. National and international agreements should be able to ensure a common adaptation and the sustainable development.

The Brundtland Commission's report (WCED 1987) defined sustainable development as „Development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The CGIAR's mission statement in 1989 defines it as „successful management of resources for agriculture to satisfy changing human needs while maintaining or enhancing the quality of the environment and conserving natural reseources" (TAC/CGLAR 1989). As argued by Stückelberger (1999) it is important to add two more dimensions: „human dignity" and „non-human environment". The basic definition of sustainable development for the present work threfore reads as follows (Stückelberger 1999, modified) „Sustainable development allows the life in dignity for the present without compromising a life in dignity for future generation or to threaten the natural environment and endangering the global ecosystem."

The Europe 2020 strategy is the persuance the of the inaugurated Lisbon strategy. It builds in those experiences and creates a new, common, economic policy system of goals and the corresponing-provision plan.

The „Europe 2020 a strategy for smart, sustainable and inclusive growth" (COM (2010) 2020) came into force in 2010 composes developmental strategy to 2020.

The aim is that the EU economy be intelligent, sustainable and inclusive taking into consideration the long run challenge of the EU such as globalisation, the pressure of resources and the ageing. These three priorities mutally confirm each other, contributing to increase of the employment, productivity and the economical cohesion not only in the European Union but also in the Member States.

The EU wants to realise five determeined aims on the area of employment, research and innovation, education, poverty, climate change and energy to 2020. To fulfil these aims, each member states adopted their own national targets in the mentioned areas which were laid down in national dokuments and submited to the Comission as National Reforme Programme and Convergence Programme.

The determined underlined targets of the Commission to achieve till 2020 are the following:

- 75% of the population aged 20-64 should be employed,
- 3% of the EU's GDP should be invested in R&D,
- The 20/20/20 climate/energy targets should be met (including an increase to 30% of emissions reduction if the conditions are right),
- The share of early school leavers should be under 10% and at least 40% of the younger generation should have a tertiary degree,
- 20 million less people should be at risk of poverty.

The Commission is putting forward seven flagship initiatives to encourage the progress under each priority – which obligatory both the EU and the member states - to motivate the progress such as „Innovation Union", „Youth ont he move", „A digital agenda for Europe", „Resource efficient Europe", „An industrial policy for the globalisation area", „An agenda for nwe skills and jobs", and „European platform against poverty".

Although the above mentioned targets and initiatives create a complex range of subjects, the aim of the present paper is not to introduce the whole Strategy, but rather to analyse the highlight initiation of „Resource efficient Europe" inside the „Sustainable growth".

The aim of the emphasize initiative called „Resource efficient Europe" is the disjunction from the economic growth the use of resources, support moving towards the low carbon economy, increase the use of energy resources, and modernise the transport sector and promote energy efficiency " (COM (2010) 2020).

The extension of sustainable growth is building a resource efficient, sustainable and competitive economy, exploiting Europe's leadership in the race to develop new processes and technologies, including green technologies, accelerating the roll out of smart grids using ICT-s, exploiting EU-scale networks, and reinforcing the competitive advantages of our businesses, particularly in manufacturing and within our SMEs, as well though assisting consumers to value resource efficiency. Such an approach will help the EU to prosper in a low carbon, resource constrained world while preventig environmental degradation, biodiversity loss and unsustainable use of resources. It will also underpin economic, social and territorial cohesion (COM (2010) 2020).

The Strategy wants to take such efficient steps - in the case of competitiveness, combating climate change, clean and efficient energy – which maximises the benefits and minimises the costs – including the spread of innovative technological solutions. Another target is to decouple the economic growth from the energy use and use resources more efficiency. These cause not only competitive advantages for Europe but also decrease the dependency of foreign resources with regards to raw materials. The priority „Sustainable growth" are the „Resource efficient Europe" and the „An industrial policy for the globalisation area" initiatives.

In order to realise an intelligent, sustainable and inclusive growth the Commission defines five emphases, measurable targets, where the data confirm the measure have to be suffuciently reliable with regards to the different situation of each member states.

Materials and methods

To achieve the aims of Europe 2020 strategy, some other documents were adopted. In October 2014, the European Council agreed on a climate and energy framework for 2030, including further targets for 2030. In March 2015 it expressed its commitment to build an Energy Union with forward-looking climate policy on the basis of the Commission's Framework Strategy (2015), (Thematic fiche 2015).

The Europe 2020 strategy set the objective to reduce greenhouse gas emissions by 20% by 2020 (compared to 1990), increase to 20% the share of renewables in energy consumption and increase energy efficiency by 20% by 2020. To analyse the progress, key statistical indicators for climate and energy were used.

Key statistical indicators:

1. Climate change

One of the main targets of Europe 2020 strategy is a reduction of GHG emissions by 20% compared to 1990 by 2020.

According to the most recent approximated data, EU emissions in 2013 (including international aviation) were 19% below 1990 levels. According to the projections submitted by the Member States in 2013, emissions are expected to be 21% lower in 2020 than in 1990 (including ETS and non-ETS). New projections submitted by Member States in 2015 confirm this trend (Thematic fiche 2015).

2. Renewable Energy

One of the main targets of Europe 2020 strategy is to increase the share of renewables in energy consumption to 20%.

In 2013, the share of renewable energy sources in the final energy consumption of the EU was 15.0% compared to 8.7% in 2005. In 2013 all sectors achieved the plans: renewable energy shares reached 25.4% in electricity, 16.5% in heating and cooling and 5.4% in transport. For electricity and heating and cooling, the deployment of renewable energy sources has been much higher than set out in National Action Plans, though the trajectory for transport has been lower than planned. Although the achievement of 2020 renewable energy target is possible for the EU and the majority of Member States, a number

of Member States will need to take additional measures to reach their 2020 targets (Thematic fiche 2015).

Table 1. Share of renewable energy in gross final energy consumption

	2013	indicative 2013-2014	2020 target
EU28	15.0%	n/a	20%
Hungary	9.8%	6.9%	13%
Lithuania	13.0%	17.4%	23%

Source: Thematic fiche 2015

3. Energy efficiency

One of the main targets of Europe 2020 strategy is to increase energy efficiency by 20% by 2020.

The Energy Efficiency Directive (EED 2012) established a requirement for Member States to set indicative national energy efficiency targets for 2020, which Member States were required to notify the Commission, to analyse these data and estimates the measure of energy savings of the EU to 2020.

Table 2. Indicative national energy efficiency target for 2020

	Primary energy consumption	Final energy consumption
Hungary	26.6	18.2
Lithuania	6.5	4.3
Sum of indicative targets EU28	1531.4	1082.9
EU28 target 2020	1483	1086

(Source: Thematic fiche 2015)

Because of economic recession necessary the complete and timely implementation of EU legislation at national level was necessary, coupled with the fact higher use of Cohesion Funds and innovative financing is essential in reaching national and EU target. Taking into account the latest modified national indicative targets for 2020 expressed in absolute final energy consumption, the savings add up to a 20.2% final energy reduction for the EU28, surpassing the 2020 target (Thematic fiche 2015).

In summary it can be said that the EU in the case of Climate change indicators, is currently on track to meet its Europe 2020 target.

In connection with Europe 2020 Strategy - as it was mentioned earlier - Member States has defined their national targets in their National Reform Programmes, reflecting the current situation of each country. These programmes contain those programmes and measures which countries planned to realise their national targets.

In this material get to introduce the measures of headline indicators and targets in the case of Hungary and Lithuania. The basic data indicated in tables were analysed in a global radar chart. The chart shows the distance of the countries – Hungary and Lithuania – to its national targets and the EU average.

The closer a country is to the center of the "*spider web*" for an indicator, the greater its distance to the respective national target. Thus the country has to make a greater effort than other countries to meet its national target (Country profiles 2015). According to the comparison it is possible to demonstrate whether a country's performance is better or worse than the EU average.

The three thematic priorities of the Strategy – smart, sustainable and inclusive growth – contain five headline targets adopted by the EU, such as employment, research and development (R&D), climate change and energy, education, poverty and social exclusion. These targets are monitored using a set of nine headline indicators (Country profiles 2015).

Results

In the analysis the indicators of National Europe 2020 were used and evaluated in the case of Hungary and Lithuania with respect to the EU28 recent and future average.

Hungary

By reducing its GHG emissions in non-ETS sectors by 21,4% until 2012, Hungary remained well below its emissions target to limit emission rises to 10% by 2020. Progress towards the country's education targets has been ambiguous since 2008. While the country met its national targets on tertiary education in 2013, it did not reduce the share of early leavers from education and training. In terms of R&D expenditure, Hungary was 0,4 percentage points below its national target in 2013 and thus closer than the EU average. The share of renewables in gross final energy consumption has more than doubled since 2005, putting the country slightly closer to its national target than the EU average. Poverty levels, however, have deteriorated in Hungary since the economic crisis began, resulting in a large gap of almost one million people that need to be lifted out of the risk of poverty or social exclusion. Despite the favourable increase in the employment rate from 2010 to 2013, the country had one of the largest gaps to its 75% target (Country profiles 2015).

In the next table the national targets (as defined in the National Reform Programs) and the latest available national data for the headline indicators are shown in the case of Hungary.

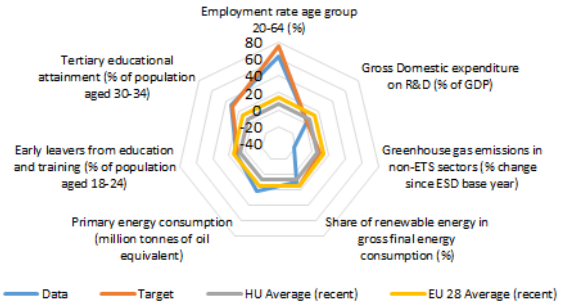

Fig. 1. National Europe 2020 indicators – Hungary (Source: Own construction)

The blue line contains the data of indicators from 2013 and 2014 published by the member states.

The red line shows the reachable targets to 2020 in the case of 7 indicators in each country.

The grey line presents the average of the measures of Hungarian and Lithuanian actual indicators.

The yellow line of the spider web shows the average indicative data of EU28.

In the case of Hungary, the „Employment rate age group 20-64 (%)" is highly different (63.2%) from other measures. It means, here is the least distance to the respective national target.

The recent „Gross Domestic expenditure on R&D (% of GDP)" is 0.4% less than the national target (1.8%).

The difference between the recent data and future target in the case of „Greenhouse gas emissions in non-ETS sector" is quite high as it does not reach not only the EU28 average (14.55%) but also the Hungarian average (6.9%).

The „Share of renewable energy in gross final energy consumption (%)" is relevant data of Hungary (9.6%) and it approaches the Hungarian average (6.9%) as well as the Hungarian target (14.65%) and is quite similar to the EU28 recent average (14.55%).

The recent data of „Primary energy consumption (million tonnes of oil equivalent)" (21.5) is higher than the EU28 recent average (14.55%).

The „Early leavers from education and training (% of population aged 18-24)" is higher (11.8%) than the respective national target (10%) but lower than the EU28 recent average (14.55%).

The „Tertiary educational attainment (% of population aged 30-34)"is higher (11.8%) than both the national target (30.3%) and the EU28 recent average value (14.55%).

The „People at risk of poverty or social exclusion (thousands)" indicator is not analysed because of it's extremely high value (3285).

Lithuania

Lithuania exceeded both of its national education targets in 2013. It also ranked among the best performing countries across the EU in terms of early leavers from education and training and tertiary educational attainment of 30 to 34 year olds. Additionally, by reducing its GHG emissions by 1.8% by 2012, Lithuania has remained well below its target to limit emission increase to 15%. A 4.7 percentage point increase in the share of renewable energies from 2005 to 2012 has moved the country close to its national target of 23%. After a significant drop between 2008 and 2009, the country's employment rate increased again by 5.6 percentage points between 2010 and 2013, moving it closer to the national target than the EU average. Poverty rates have fallen since 2010, but Lithuania would need to lift another 100 000 people out of poverty to meet its national 2020 commitment. In terms of R&D expenditure, a one percentage point gap needs to be closed for the target of 1.9% of GDP to be reached (Country profiles, 2015).

In the next table the national targets (as defined in the National Reform Programs) and the latest available national data for the headline indicators are shown in the case of Lithuania.

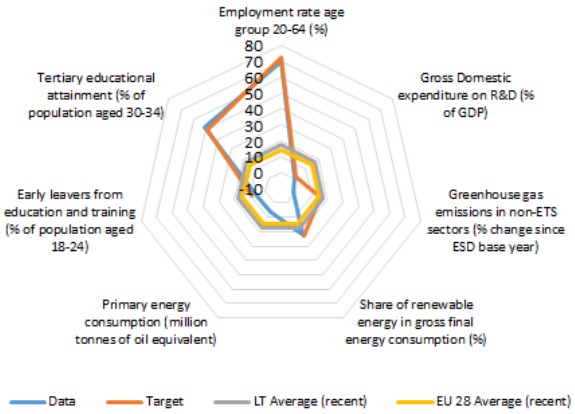

Fig. 2. National Europe 2020 indicators – Lithuania (Source: Own construction)

The blue line contains the data of indicators from 2013 and 2014 published by the member states.

The red line shows the reachable targets to 2020 in the case of 7 indicators in each country.

The grey line presents the average of the measures of Hungarian and Lithuanian actual indicators.

The yellow line of the spider web shows the average indicative data of EU28.

In the case of Lithuania, the „Employment rate age group 20-64 (%)" is quite different (69.9%) from other measures. It means, here is the least distance to the respective national target.

The recent „Gross Domestic expenditure on R&D (% of GDP)" is lower (0.95%) than the national target (1.9%).

The „Greenhouse gas emissions in non-ETS sector" is much lower (-1.28%) than the national target (15%), but quite similar to both the national average (17.4%) and the EU28 recent average (14.55%).

The „Share of renewable energy in gross final energy consumption (%)"'s relevant data (21.7%) of Lithuania is quite similar to the national target (23%) and higher than the recent average of both Lithuania (17.4%) and the EU28 (14.55%).

The recent data of „Primary energy consumption (million tonnes of oil equivalent)" (5.9) is lower than the EU28 recent average (14.55%).

The „Early leavers from education and training (% of population aged 18-24)" is lower (6.3%) than the respective national target (9%) and lower than the EU28 recent average (14.55%).

The recent data of „Tertiary educational attainment (% of population aged 30-34)"is higher (51.3%) than both the national target (48.7%) and the EU28 recent average value (14.55%).

The „People at risk of poverty or social exclusion (thousands)" indicator is not analysed because of it's extremely high value (917).

Conclusions

Since the industrial revolution with the increase of economic-, industrial- and agricultural production the pollution of the environment increased not only in the air, but also in the natural waters and soils in all over the world.

As the managing of ecological and economic problems can be realized by international collaboration only, several multilateral agreements have come into force to manage the connection between the energy-, economy-, environment- and climate policy to ensure sustainable development.

Beyond the multilateral agreements with the purpose of cooperation on EU level, the targets and tools had been laid down as well as the indicators to ensure the measurements. In the interest of common implementation the Europe 2020 a strategy for smart, sustainable and inclusive growth got to be enforced. It specifies three mutually reinforcing priorities and according to five EU headlines targets it suggests seven flagship initiatives altogether in each priority theme. All these have been put forward to realise high level of employment, productivity and social cohesion as well as in the interest of sustainable future.

The study introduces – according to the latest data – the recent results and future targets of Hungary and Lithuania by the defined indicators of Strategy 2020 compare to the recent average measure of the EU.

The above presented spider chart analyses and its results allowed us to conclude if the examined countries realize and fulfil their targets, than the aim of EU2020 strategy become accessible, the more environment friendly economic growth including all classes of society.

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THE CONNECTION BETWEEN SUSTAINABLE DEVELOPMENT AND ENERGY CONSUMPTION IN THE EU, HUNGARY AND LITHUANIA

S u m m a r y

The key issue of sustainable development is ther energy issues of development, not just because the energy is the main element of economic growth, but because of that is the main contributor of environmental problems including the climate change.

The steps forward sustainable energy production is well analyzed in the international literature. This paper is focusing on sustainability of consumption.

The study introduces – according to the latest data – the recent results and future targets of Hungary and Lithuania by the defined indicators of Strategy 2020 compare to the recent average measure of the EU.

The results of this research allowed us to conclude if the examined countries realize and fulfil their targets, than the aim of EU2020 strategy become accessible, the more environment friendly economic growth, and increasing wellbeing for all classes of society.

KEYWORDS: sustainable development, energy, European Union, Hungary, Lithuania.

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ENERGY MANAGEMENT AND PUBLIC AWARENESS IN SELECTED HUNGARIAN SETTLEMENTS

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Annotation
Environmental and energy efficiency problems are important problems of our present. Despite a freeze on energy prices energetic self-preservation is a growing problem in Hungary also for households and local governments. Even though energy waste and poverty both typical for them. Energy efficiency as a problem has not only an environmental and social aspect (in a broader sense) in Hungary but another special aspect too. Eighty percent of Hungarian households are affected by energy poverty because they spend more than 10 % of their income on energy costs usually. According to a countrywide, representative poll of Hungarian Gallup Institute in 2007 the vast majority of the population is willing to make (not too significant) sacrifices for the environment, but many others are waiting for others help for solution. Only a small group of respondents think that each person has just as much responsibility as the local governments, environmental organizations and the government in solving environmental problems. Moreover in recent years - as a result of governmental savings - a start of a strong debt spiral can be observed in local governments. The municipalities' material expenses, which are controlled by the State Audit, increased by 136,8 % between 2007 and 2010. Hungarian local governments spent 345 million € (totally) on energy expenditures in 2011 according to a presentation by former vice mayor of Gödöllő, Zsolt Fábián. Quite sure that rural areas and local governments are able to spread environmentally conscious and energy efficient development methods, because the citizen's energy efficiency (and climate) awareness can be strengthened by local public institutions, mostly municipalities. In order to the local governments are increasingly able to meet energy efficiency requirements during everyday management creating energy efficient operation of public buildings is essential. That is why it would be necessary to insert energy efficiency requirements into local governmental (relevant) legal provisions, so this important requirement appears in everyday practice too. In order to support the above mentioned facts I used and evaluated two kind of questionnaires to examine the environmental and energy awareness of selected Hungarian settlements and their inhabitants
KEY WORDS: climate awareness, energy efficiency, financial position of local governments, energy poverty in households.

Introduction

According to the thought of a well-known climate scientist, John Gardner (State of the World, 2009) see global warming as breath taking opportunities disguised as insoluble problems. Environmental and energy efficiency problems are determinative problems of our present. Despite – using environmental indicators of most of the OECD countries – the fact, there is a strong relationship between energy consumption and CO_2 emissions, apart from the depletion of the fossil energy sources, Hungary is highly dependent on them yet. Hungary has one of the highest gas dependences of International Energy Agency member countries, energy dependency and security issues have been a primary concern of the government (Ürge-Vorsatz et al., 2010). From 2008 to 2009 energy consumption significantly decreased in Hungary (CSO, 2010), but increased again in 2010. That year the relative energy intensity of the economy decreased by 0.7%, while GDP increased by 1.7%. In Hungary 29.4% of final energy is consumed by the residential sector, and 15% is consumed by the (local) governmental sector inter alia (Fábián, 2011). Hungary has a large potential to reduce its energy consumption through improvements in the energy efficiency of the various end-use sectors. Hungary's energy saving potential in the middle-term (by 2020 and 2030) is greater than the EU27's average, and also that households are by far the sector with the largest potential in Hungary (Ürge-Vorsatz et al., 2010). According to the Hungarian NGO, ENERGIAKLUB Climate Policy Institute's investigations (Fülöp, 2013) the energy consumption of Hungarian state office buildings can be reduced by 50%. According to the same study the energy consumption of Hungarian state educational buildings (various kind of elementary schools and high schools) can be reduced by 62,9%. Moreover buildings are key to the climate not only energy challenge as they are responsible for approximately 50% of energy-related CO_2 emissions (Ürge-Vorsatz et al., 2010). One of the reasons why this figure is so high is the inefficiency of its building stock. The high energy consumption of the average residential unit in Hungary is a consequence of the long-time subsidised energy prices and of the deterioration of the residential stock. It can be argued that if the energy inefficiency of the Hungarian building stock is improved, not only will this reduce GHG emissions significantly, but it can also contribute to other important elements of the social, political and economic policy agendas, including the improvement of energy security, the reduction of fuel poverty, the promotion of new business opportunities, as well as an improved air and life quality and health.

Beyond the financial necessity there are other important factors which could press Hungarian local governments to "think green", and take measures to create energy efficiency. The base of the substantive political priorities defined by Multiannual Financial Framework 2014–2020 are the priorities from the Europe 2020 document (European Commission, 2010) which will have an important role in this decade. According to

the framework, 37 % of the available financial resources will be spent on sustainable development and natural resources in the next years, and after 2014 the environmental and climate policy priorities will prevail in all major EU funding instruments. It is necessary to increase the proportion of expenditures on climate policy by minimum 20 % together with contribution from other policy areas. The Commission's announcement – the so called Europe 2020 report which was finalized by 2010 – suggested that the European Union should set realistic targets in the fields of energy, education, R&D, furthermore fight against poverty, and climate change. The national goals could be deduced from these targets. We could find causes of the energy consumption rate reduction in poverty rather than in serious changes of consumer's behaviour. Consumers and enterprises are exposed to harmful and costly price changes; this threatens the economic security and contributes to the climate change.

According to researchers (Lányi, 2012, The Climate Paradox, 2007) local communities will have an essential role in prevention of climate change - this role will be much greater than what the central authorities would have - that is why it is justifiable to let them take a major role in the fight against climate change. Rural areas and local governments will have an important role in spreading environmentally conscious and energy efficient development methods, because the citizen's energy efficiency (and climate) awareness can be strengthened by local public institutions, mostly municipalities. Hard steps should be taken against climate change and energy waste making it difficult to communicate these steps to the people. It is important to make these decisions by authorities which are close to the people. Furthermore local and regional strategies have to be evolved in order to shape public opinion into the right direction, build people's environmental responsibility, and create a strong environmental parochialism. (Kovács, 2001) In Hungary energetic self-preservation is a problem also for households and local governments even though energy waste and poverty both typical for them. In the past few years many Hungarian local governments – mostly counties, larger towns, but some smaller ones too – financial situation is very difficult. Still only few Hungarian local governments employ energy and climate experts, who should contact with authorities, and non-governmental organizations, residents, coordinate the work on energy efficiency and climate change, monitor climate protection tender opportunities, prepare tender documents, and finally participate in the implementation of the projects.

My presupposition is if a local government (settlement) took care of energy efficiency in its everyday practice than the local government would be able to save energy and money. Moreover the inhabitants would live their everyday life in an energy efficient (and climate friendly) way, because they can learn from the good examples they can see very close to them.

Results and Discussion

Energy poverty in households

Energy efficiency as a problem has not only an environmental and social aspect (in a broader sense) in Hungary but another special aspect too. This is energy poverty, which as a social problem arose in 1970s and 1980s. According to the most common interpretation a household is considered to be in energy poverty if the adequate heating is a disproportionate burden, so more than a certain percent of household income is spent for energy bills (Fülöp - Lehoczki-Krsjak, 2014). The Hungarian researches are based on energy costs provided by households and they compare the energy costs to the household's total income. Eighty percent of Hungarian households are affected by energy poverty because they spend more than 10 % of their income on energy costs usually. Physical illness (especially respiratory) and mental (anxiety, feelings of isolation) diseases are the most common effects of energy poverty, furthermore drastic deterioration in the condition of the buildings - high rate of CO_2 emission is associated with it - and an increase in households debt (Tóth - Szemes 2013).

In 2013, the annual average consumption expenditure of a Hungarian household was 833.000.-Huf (2.650.-Euro), which is - taking into account the annual inflation too - little changing compared to the previous year. The largest item of a Hungarian household's expenditure remained the home maintenance and household energy, they spent averagely 201.000.-Huf (660.-Euro) per capita per a year. In an average Hungarian household 196.000.-Huf (630.-Euro) was spent for food and non-alcoholic beverages, 101.000.-Huf (325.-Euro) was spent for travel and transport per capita, per a year (CSO, 2015). The ratio of housing costs was decreased by 1.3 percentage points compared to 2012, because of the lower overhead expenses (officially regulated).

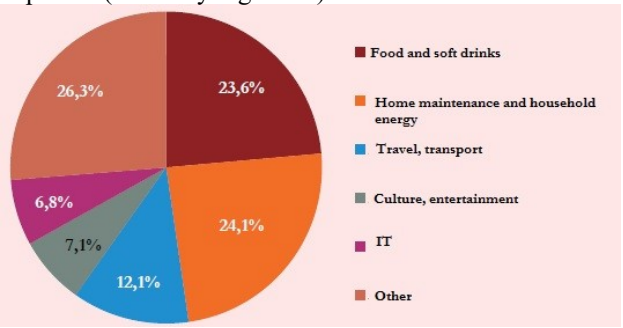

Fig. 1.: The distribution of total expenditures according to main consumer groups (CSO, 2015)

An average Hungarian household spent 51.000.-Huf (170.-Euro) for gas, 47.000.-Huf (155.-Euro) for electricity, 15.000.-Huf (50.-Euro) for district heating, and 14.000.-Huf (45.-Euro) for water supply per capita in 2013. The income released as a result of energy expenditures decrease for those who live in the lower income categories generated some consumption increase in the other main expenditure groups (CSO, 2015).

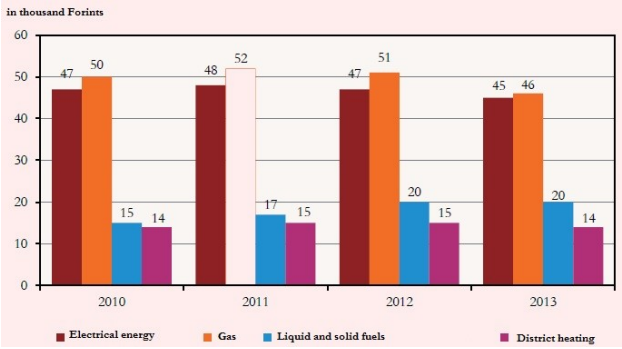

Fig. 2.: Households annual energy expenditures per capita (CSO, 2015.)

Energy poverty as a problem mainly affects elderly people living alone in smaller towns in countryside. 39 % of respondents participating in the CSO Household Budget and Living Conditions Survey complained (Fülöp - Lehoczki-Krsjak, 2014), home maintenance is very difficult for them. These respondents mostly lived in large families, or they were single parents with their child/children. 54-60% who lives in energy poverty are not poor in terms of income.

In the first report of the project "Energy Poverty in Hungary" Tirado-Herrero and Ürge-Vorsatz (2010) stated that the main reasons of the high level of energy poverty in Hungary are high energy prices, relatively low level of GDP per capita, high level of energy consumption of houses, and finally the inadequate temperature regimes of low-income families' houses. The number of energy-efficiency investments is expected to be lower and lower because of the overhead reduction introduced from January 1st, 2013, which decrease gas and electricity and district heating prices in Hungary. However, as a result of the overhead reduction the survival of public utility services is problematic, so they cannot pay too much attention to their customers to reduce consumption. That is why the uncertainty in prices leads decrease of developments in the market of energy efficiency. The Hungarian building stock has very low energy efficiency. The Hungarian residential energy consumption is among the ten highest in the EU 27 countries relative to the average EU climate. There are several possibilities to moderate the effects of energy crisis in state and municipal level. The governmental interventions possibilities (Tóth - Szemes 2013): (1) increasing energy efficiency, create legal framework and an incentive system to encourage the use of new energy sources, (2) increasing the support for energy supply improvement, and researches on new, more efficient energy utilization, (3) developing energy efficient buildings and means of production, (4) communication new knowledge (about energy efficiency) to the general public. Local governmental interventions possibilities (Tóth - Szemes 2013): (1) organization new, energy efficient enterprises/firms immigration to the area, (2) improving energy self-sufficiency of municipalities.

Energy self-sufficiency problems in local governments

Paradoxically, increased investment activity related to EU applications had a negative impact on the financial position of local governments (Domokos, 2012). The EU financial support system would work more appropriately if resources can be available to support operations and constructions. It was announced in October 2012 that the state would assume the full debt of settlements which have less than 5000 inhabitants and partly assume the debt of larger settlements. The financial balance of local municipalities deteriorated between 2007 and 2010. Municipality bank debts increased by 77,7% (Hunyor, 2012). The most important conclusion of the national audit (in 2011) that investments, paradoxically investments which were co-financed by the European Union (and the local governments) led to the current situation. The majority of facilities created by the above mentioned new investments do not generated revenues, but cause additional expenses for local governments. That is why investments financed from loans accumulated so many problems, and often led to difficult situations: besides loan repayments, and related interests the operating incomes should also cover the further maintenance of the facility, in addition these investments often linked to local government's self-imposed tasks. The forms of indebtedness consisted of operating credits, investment credits from banks and bonds. The biggest increase could be observed in the field of bond issues (Vas, 2011). The non-operating budgets of every Hungarian municipality had deficits in every year between 2007 and 2010. There are commitments the repayments of which are not assured because of increased investments. Another risk factor concerns the future management, operations and sustainability of facilities established by previous developments (National Audit Office [NAO], 2012). Another problem is that in many cases the operation did not result in additional own revenues, and significant savings in expenditures. In the past few years, the investments main goal did not involve improving equipment used in obligatory municipal tasks nor the efficiency of tools (Domokos, 2012). Operating incomes of local governments declined steadily from 2008 (from 2007 to 2010 operating incomes decreased by 55,8 %) (NAO, 2012). Material expenses spent on public institution operations were very important items of municipal budgets. Their energy (utility) costs increased. The growth rate of energy was higher than any other material expenses growth rate (Kovacsics, 2003). Communal consumers represented an increasing proportion in the national energy balance. The municipalities' material expenses, which are controlled by the State Audit, increased by 136,8 % between 2007 and 2010. During the decision-making process, priority was not given to repayment requirements but to compulsory tasks, the improvement of equipment efficiency, and the preservation of existing assets. Moreover, because most Hungarian municipal buildings are old, their maintenance is also expensive. Hungarian local governments spent 345 million € (totally) on energy expenditures (Fábián, 2011). The local governments' main reason for energy investments was maintenance

(Kovacsics, 2003). Energy efficiency improvements have many benefits. However, the approach of local governments and residents needs to change. This pertains not only to climate protection and morality but expenditures too. It can be stated that despite the consolidation of debt default risk remained, but declined significantly. The findings of the State Audit Office - made in 2011 - were still true unfortunately in 2013-2014 too, so the State Audit Office can give such suggestions what they gave in 2011 to the local governments involved in the inspection (Renkó, 2013).

About a related research

One of the researches related to the mentioned topic can be connected to Szent István University, which is a part of a research consortium (deals with pyrolysis as waste management technology). One of the areas of this research is about the acceptance of new waste management technologies (which creates and save energy) within the community, or generally the environment and energy (saving) awareness of (local) communities. It was assumed that the presupposition (mentioned in the materials and methods chapter) can be better verified by examining smaller settlements, because there is a much more direct relationship between the inhabitants and the local government than in larger settlements. That is why four relatively small (3-8000 inhabitants in one by one) Hungarian settlements were chosen randomly where surveys were carried out in Autumn 2013 in order to define the level of the environment and energy (saving) awareness of inhabitants. The chosen settlements are Vértesszőlős, Tura, Sajóbábony and Polgárdi. The selected settlements represent the specific problems of their wider area very well. Vértesszőlős is one of the most energy conscious Hungarian settlements located in Central Transdanubian Region, about 100 km from Budapest. The administrative area of the town is quite small that is why establishing industrial parks or big agricultural areas are not possible. The small area is the reason why there is no chance to designate as much residential areas as municipality would like, therefore the prices of building sites are high. Since 1970s many people have been moving from the neighbouring big towns, mostly affluent young people. The Mayors main goal is a liveable and a sustainable ("pain-free" savings) nice town, transparent management. In 2010 the town spent about 43.000.-euros to pay electricity bills, and about 32.000.-euros to pay gas bills. The town got approximately 215.000.-euros from Energy and Environment Operative Program (co-funded by the European Regional Development Fund) to full energy reconstruction of cultural centre of the village, the mayor's office, the school, and so on. Currently 17 projects are running; every 2 out of 9 applications for EU funds are rejected every year. In Vértesszőlős not only the mayor but the notary monitors energy bills every month. The municipal is in contact with Greenpeace; two tree planting events are held every year by the municipality, NGOs and head of municipal institutions. This year is the third one when the pruning waste is collected from residents by the municipality. In 2011 the Vértes Power Plant used this pruning waste, but from second half of 2012 the municipality have been used it in new local biomass furnaces. The most important energy-conscious step is to acquire EU resources to achieve 50% reduction in energy consumption till September 2012, but the main goal for 2020 is to achieve energy independence. In contrast with Vértesszőlős we can mention Sajóbábony a small town located in Northern Hungary Region a relatively poor part of the country. The town faces different kind of problems, for example it has a pollutant chemical industrial park for decades, the housing stock is relatively old, and the proportion of disadvantaged population groups is rather high. This settlement is a very interesting case study because it has two working hazardous waste incineration plants but the inhabitants refused (in a local referendum) to build there a biomass (pig manure)-fired power plant. The energetic self-preservation is a very big problem for the 50% of the inhabitants according to the mayor. Even so the local government tries to help to the households during renovations. The third location is a settlement in Central Hungarian Region, Tura close to Gödöllő and Budapest. This town tries to be energy conscious that is why for example their nursery's building get hot water and most of the electricity from solar cells, and the local government plans to produce tomatoes in greenhouses heated by geothermal energy. The public acceptability of energy conscious projects is better than in Sajóbábony thanks to the location of the settlement inter alia. Polgárdi a town near to Lake Balaton, in Central Transdanubian Region was chosen because there will be a working pyrolysis waste management plant in a short period of time. Till now more than 600 questionnaires were collected from the mentioned settlements (their processing were done). Unfortunately approximately another 100 questionnaires have to be collected from Polgárdi town in February than the sample will be representative.

Out of the 677 completed questionnaires we got 172 from Vértesszőlős, 203 from Polgárdi, 209 from Tura and 93 from Sajóbábony. An opportunity was offered in every town, complete the questionnaire via the internet. It was thought this could be a real opportunity for youngsters, and students. Unfortunately very few people chose this option.

In **Vértesszőlős** 53.5% of the responders finished their secondary studies and 37.8% had university or college degree. 68.6% of the responders had a job, but only 6% was student. The proportion of unemployed person was 1.7%. Most of the responders (72%) lived in a rural, family housing milieu. Only two person lived in block of flats.

In **Polgárdi** 60.1% of the responders finished their secondary studies and 20.2% had university or college degree. 67.49% of the responders had a job and 26.10% were retired. The proportion of unemployed person was 4.9%. Most of the responders (92%) lived in a family housing milieu. Only 14 person lived in block of flats.

In **Tura** 59.33% of the responders finished their secondary studies and 19.61% had university or college degree. 59.80% of the responders had a job and 28.23% were retired. The proportion of unemployed person was 3.8%. All of the responders lived in a family housing milieu.

In **Sajóbábony** 64.52% of the responders finished their secondary studies and 10.75% had university or college degree. 52.69% of the responders had a job and 35.48% were retired. The proportion of unemployed person was 6.45%. Most of the responders (69.89%) lived in a family housing milieu. 21 person lived in block of flats.

Most of the variables I used are nominal ones, but I worked with ordinal variables too. This fact is basically determined the statistical methods I used, which were cross-table analysis, logistic regression, and non-parametric tests. For each variable pairs I tried to perform the above mentioned tests in order to acquire well-founded results. The relevant results of our analysis are the following:

"What is the level of your highest qualification?" versus "Have you ever tried to reduce your household energy costs?"

I was able to use 97.9% of the answers to the mentioned questions. According to my cross-table analysis results I can state that the level of the highest qualification of the people who have ever tried to reduce their household energy costs mostly high school, vocational or industrial school. Most of the responders have not tried to reduce their household energy costs yet. The result of the Chi-square test ($p<0.01$) is highly significant, so the associative relationship is statistically justified. My logistic regression analysis results partly confirm what I said before. Based on significance values and odds ratios those who answered "Yes, I have." to the question "Have you ever tried to reduce your household energy costs?" mostly had less than 8 class, or a degree from industrial/vocational school. According to the non-parametric Mann-Whitney Test unfortunately we have to say the tests of this variable pair cannot give us valuable results. Because the probability that somebody has higher level of qualification who answered the second question "No, I have not." is high.

"Are you concerned about the status of the environment?" versus "Energy saving is very important for me. I would pay for it irrespective of my financial status."

I was able to use 84.9% of the answers to the mentioned questions. According to my cross-table analysis results I can state that most of the people who would like to pay for energy saving (irrespective of their financial status) are concerned about the status of the environment mostly, or very. The result of the Chi-square test ($p<0.01$) is highly significant, so the associative relationship is statistically justified. Unfortunately my logistic regression analysis results do not confirm my presuppose, rather a common truth: if we consider environment protection as a moral issue most of the people want to protect environment. But if we consider environment protection as a financial issue it is not true. According to the non-parametric Mann-Whitney Test the probability of answer "Yes" to the question "Energy saving is very important for me. I would pay for it irrespective of my financial status." is higher if the responder is more environmentally conscious than the average.

"Are you concerned about energy efficiency?" versus "Have you ever tried to reduce your household energy costs?"

I was able to use 97.5% of the answers to the mentioned questions. According to my cross-table analysis results I can state that most of the responders have not ever tried to reduce their household energy costs however they are concerned about energy efficiency. The result of the Chi-square test ($p<0.01$) is highly significant, so the associative relationship is statistically justified. Let us take into consideration the results of logistical regression! Then we can state it is sure those will answer "Yes, I have." to the question "Have you ever tried to reduce your household energy costs?" who are concerned about energy efficiency mostly, or very. According to the non-parametric Mann-Whitney Test confirm what I said before. Probably because of financial problems, and the rate of returns most of the responders who are energy conscious have not tried to reduce their household's energy costs.

"Have you ever tried to reduce your household energy costs?" versus "If the municipality of your residence did more for environment protection and energy saving you would be more environment friendly and energy conscious than now?"

I was able to use 97.0% of the answers to the mentioned questions. According to my cross-table analysis results I can state that most of the responders have not tried to reduce their household energy costs, however they said if the municipality of their residence did more for environment protection and energy saving they would be more environment friendly and energy conscious. The result of the Chi-square test is less significant, so the associative relationship is statistically barely justified.

Unfortunately most of the responders are energy conscious (and environment friendly) but only in a conceptual level. Reducing household energy costs can be very costly. People need raise funds (for example from EU applications) and they need good examples they can see very close to them. If a local government takes measures to increase energy efficiency these measures will have a spill-over effect. The public buildings will be more energy efficient, local governments will pay less to energy bills, and residents will see good examples so their attitudes will change.

"Instead of conclusion" – Ideas vs. reality

Among municipal energy management measures firstly, preventive or mitigation measures should be developed. Ensuring energy efficiency and using more renewable energy will enable the reduction of greenhouse gas emission and prevent or slow down climate change. It is essential for local governments to be able to meet energy efficiency requirements in their everyday management as well as creating energy efficient operations in public buildings. That is why it is necessary to introduce energy efficiency requirements to the relevant legal provisions for local governments. In addition, it is important that each municipality, with more than 1000 inhabitants, employs at least one climate rapporteur or energy professional. To achieve these goals the local governments' participation in applications should be made easier. Various steps should be taken in order to change people's environmental or energy approach. Residents need to become aware that they

belong to a community. If steps are taken to create energy efficiency local governments/communities, it will be possible to use their local energy resources and create jobs.

There are two important alliances of climate friendly and energy efficient settlements in Hungary.

The **Association of Climate Friendly Towns** was established on 17 November 2007, in Hosszúhetény, with the active participation of Hungarian Academy of Sciences Institute of Sociology Climate Change Research Group. It aims to help Hungarian municipalities to get their own, professional climate change and energy efficiency strategy, help to realize these strategies, represent the interests of towns in climate change issues. With the help of British Embassy they created the Climate Call to urge the development of local climate change and energy efficiency strategies. The Association is searching for energy and water saving opportunities for towns and in order to neutralize the greenhouse gases emission and support the local-level green programs it founded a Climate Fund. Tatabánya, Pomáz and Hosszúhetény (Fehérváry, 2010, Antal, 2007) already have had an own local climate strategy which is accepted by the local council. After a town joins to the Association a local Climate Association has to be founded there; the real work will take place in the future in them in collaboration with the municipal representatives.

The **Association for Energy Efficient Towns** founded in 2006. The aims of the Association are the protection of the environment, education, upbringing of the local youth and children in order to introduce the energy efficiency as a very important aspect of local community's life. This service is indirectly affecting the whole society, representing individual and common interests. In order to perform its task the Association helps to the municipalities to form their own energy management, scientific and research activities and training the local government representatives.

They have 39 members, totally.

Within the framework of a survey questionnaires were sent to them in order to test their climate friendly and energy conscious everyday operation, and their operations effect to their inhabitants. I have got 18 completed questionnaires back till now. My experiences are very mixed. In the settlements members of the local government's council, or the vice mayor are the contact persons between the settlement and the alliance. In others the contact persons are employee of mayor's office, or "just" technicians. That is why some settlements are able to answer questions like "Has the local government ever tried to decrease the energy accounts permanently?", or "Does the settlement apply climate change (energy efficiency) specialist permanently?" easily. Unfortunately other settlements said the information in connection with for example energy efficiency are scattered between various departments so they are not able to answer my questions. That is why now I am publishing only part information.

Only four settlements employ a climate expert permanently: Tata, Tatabánya, and two districts of Budapest. Tata is the smallest of them, but the settlement has more than 23600 inhabitants. Other members – including official centre of counties – do not employ climate experts, 10 out of 18 have never requested advices from a climate expert. Otherwise every tested settlement have tried to minimize their energy (electricity, and gas) bills. Furthermore every tested settlement answered "Yes" to the following question: "Are the monthly energy consumption of local public buildings and public lighting system recorded by the local government?" In three settlements (Martfű, Sajólád, Tápióbicske) there are not any energy or environmental conscious NGO. Energy production from any kind of waste is not specific to alliance member settlements, except districts of Budapest.

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ENERGY MANAGEMENT AND PUBLIC AWARENESS IN SELECTED HUNGARIAN SETTLEMENTS

S u m m a r y

Hungary has one of the highest gas dependences of International Energy Agency member countries, energy dependency and security issues have been a primary concern of the government. Hungary has a large potential to reduce its energy consumption through improvements in the energy efficiency of the various end-use sectors. Moreover buildings are key to the climate not only energy challenge as they are responsible for approximately 50% of energy-related CO_2 emissions. The high energy consumption of the average residential unit in Hungary is a consequence of the long-time subsidised energy prices and of the deterioration of the residential stock. If the energy inefficiency of the Hungarian building stock is improved, not only will this reduce GHG emissions significantly, but it can also contribute to other important elements of the social, political and economic policy agendas. Rural areas and local governments will have an important role in spreading environmentally conscious and energy efficient development methods, because the citizen's energy efficiency (and climate) awareness can be strengthened by local public institutions, mostly municipalities. The Hungarian residential energy consumption is among the ten highest in the EU 27 countries relative to the average EU climate. Eighty percent of Hungarian households are affected by energy poverty because they spend more than 10 % of their income on energy costs usually. Most of Hungarian municipal buildings are old, their maintenance is also expensive. Hungarian local governments spent 345 million € (totally) on energy expenditures in 2011. It is essential for local governments to be able to meet energy efficiency requirements in their everyday management as well as creating energy efficient operations in public buildings. That is why it is necessary to introduce energy efficiency requirements to the relevant legal provisions for local governments. Various steps should be taken in order to change people's environmental or energy approach. Unfortunately the mentioned requirements are realized entirely neither in "normal local governments" nor in climate friendly and energy conscious ones.

KEYWORDS: climate awareness, energy efficiency, financial position of local governments, energy poverty in households

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Bendri reikalavimai

- Redakcinei kolegijai pateikiami straipsniai privalo būti profesionaliai suredaguoti, be rašybos, skyrybos ir stiliaus klaidų. Straipsniuose turi būti naudojama mokslinė kalba.
- Straipsniai rašomi anglų kalba.
- **Straipsnio apimtis 6–8 puslapiai** (tik porinis puslapių skaičius).
- Straipsnio struktūra turi atitikti moksliniams straipsniams būdingą struktūrą. Jame turi būti išskirtos tokios dalys:

1. Straipsnio **pavadinimas**. Straipsnio **autorius, Institucija**, kurią atstovauja autorius. Straipsnio autoriaus **elektroninis paštas**.
2. **Anotacija** su pagrindiniais žodžiais ta kalba, kuria rašomas straipsnis. Anotacija turėtų trumpai apžvelgti straipsnio turinį, nurodyti per kokią prizmę bus analizuojama problema. Anotacijos tekstas turi būti aiškus ir glaustas. **Anotacijos apimtis turi sudaryti ne mažiau arba lygiai 2000 spaudos ženklų.**
3. **Pagrindiniai žodžiai –** tai žodžiai, kurie išreiškia svarbiausius nagrinėjamos temos požymius. Penki ar šeši straipsnio pagrindiniai žodžiai privalo būti įtraukti į Lietuvos Nacionalinės M. Mažvydo bibliotekos autoritetingų vardų ir dalykų įrašus. Ar pagrindinis žodis yra įtrauktas į šį sąrašą, galima pasitikrinti bibliotekos elektroninėje svetainėje adresu: <http://aleph.library.lt/F/UYSMKM4NY8C9H33SP6PV8F2585NQU59CEEBJVCYCA3HUQNQCR5-31681?func=find-b-0&local_base=LBT10>, „paieškos lauke“ įvedus „Tema, dalykas (lit)“ (lietuvių kalba) ir „Tema, dalykas (eng)“ (anglų kalba).
4. **Įvadas**, kuriame suformuluotas mokslinio tyrimo tikslas, aptarta nagrinėjamos temos problema, aktualumas ir jos ištirtumo laipsnis, išskiriamas tyrimo objektas, uždaviniai bei tyrimo metodai. Analizė – straipsnio medžiaga. Straipsnio poskyriai *nenumeruojami.*
5. **Analizė – straipsnio medžiaga**. Straipsnio poskyriai *nenumeruojami.*
6. **Išvados**. *Nenumeruojamos.*
7. **APA (American Psychological Association) metodinių reikalavimų pavyzdžiai**

Šaltinių citavimo pavyzdžiai

Citata trumpesnė negu 2 eilutės:

Anot tyrėjos, „studentams sunku perprasti APA reikalavimus“, tačiau tyrėja nenagrinėja konkrečių mpriežasčių (Jones, 1998, p. 199).

Citata ilgesnė negu 2 eilutės:

Jones tyrimas rodo:

Studentams sunku perprasti APA metodinius reikalavimus, ypač rašantiems pirmą darbą, kuriame reikia nurodyti šaltinius. Šie sunkumai gali kilti ir dėl to, kad daugeliui studentų nesiseka susirasti metodinių reikalavimų aprašo arba jie drovisi prašyti pagalbos darbo vadovo. (p. 199)

Citatos perfrazavimas:

Anot Jones (1998), APA metodiniai reikalavimai citatų šaltiniams yra sunkiai perprantami tiems, kurie juos taiko pirmą kartą.

APA metodiniai reikalavimai citatų šaltiniams yra sunkiai perprantami tiems, kurie juos taiko pirmą kartą (Jones, 1998, p. 199).

Literatūros sąrašo sudarymo pavyzdžiai

Cituojamas vieno autoriaus šaltinis:

Berndt, T. J. (2002). Friendship quality and social development. *Current Directions in Psychological Science, 11*, 7-10.

Cituojamas autorių kolektyvas (3-7 autoriai):

Kernis, M. H., Cornell, D. P., Sun, C. R., Berry, A., Harlow, T., & Bach, J. S. (1993). There's more to self-esteem than whether it is high or low: The importance of stability of self-esteem. *Journal of Personality and Social Psychology, 65*, 1190-1204.

Cituojama iš numeruoto periodinio šaltinio:

Scruton, R. (1996). The eclipse of listening. *The New Criterion, 15*(30), 5-13.

Cituojama iš žurnalo:

Henry, W. A., III. (1990, April 9). Making the grade in today's schools. *Time,* 28-31.

Cituojama iš knygos:

Autorius, A. A. (Leidimo metai). *Pavadinimas: Paantraštė*. Vieta: Leidykla.

Cituojama iš vėlesnių leidimų:

Helfer, M. E., Keme, R. S., & Drugman, R. D. (1997). *The battered child* (5th ed.). Chicago, IL: University of Chicago Press.

Cituojama iš internetinių šaltinių:

Autorius, A. A., autorius, B. B. (publikacijos data). Pavadinimas. *Internetinio šaltinio pavadinimas, numeris/tomas* (jeigu yra). Paimta iš http://www.someaddress. com/full/url/

PASTABA. Išsamiau apie APA stiliaus metodinius reikalavimus žr. OWL, Purdue for a complete listing of sources and formats, http://owl.english.purdue.edu/owl/resource/560/01/

8. **Santrauka** su **pagrindiniais žodžiais** rašoma anglų kalba. **Santraukos apimtis – ne mažiau 3000 spaudos ženklų.**

9. Autorių trumpas CV, kurį sudaro: autoriaus vardas, pavardė. Mokslinis laipsnis. Darbovietė. Pareigos. Mokslinių tyrimų kryptis. Adresas. Telefonas. Kita informacija apie autorių. Autorių CV turi sudaryti **ne daugiau kaip 3000 spaudos ženklų**.

Reikalavimai straipsnio surinkimui ir sumaketavimui

- Straipsniai turi būti parengti MS Word programa A4 formato lapuose.
- Dokumento paraštės: viršuje – 2,0 cm, apačioje – 2,0 cm, kairėje – 2,0 cm ir dešinėje – 2,0 cm.
- Straipsnio tekstas: mažosiomis raidėmis lygiuojamas pagal abu kraštus, dydis – 10 pt, šriftas – Times New Roman, pirma pastraipos eilutė įtraukta 0.5 cm.
- Straipsnio pavadinimas: didžiosiomis raidėmis, kairėje, dydis – 14 pt., **Bold**.
- Autoriaus vardas, pavardė: mažosiomis raidėmis, kairėje, dydis – 12 pt., **Bold**.
- Institucijos pavadinimas: mažosiomis raidėmis, kairėje, 10 pt., *Italic*.
- Elektroninis paštas: mažosiomis raidėmis, kairėje, 10 pt., *Italic*.
- Anotacijos: teksto dydis – 8 pt, pavadinimas – 10 pt, **Bold**. Po paskutinio pagrindinio žodžio taškas nededamas.
- Skyrių pavadinimai: mažosiomis raidėmis, kairėje, dydis – 11 pt., **Bold**.
- Žodis *literatūra* – 10 pt, literatūros sąrašas – 9 pt dydžio.
- Santrauka anglų kalba: straipsnio pavadinimas didžiosiomis raidėmis 10 pt. dydžiu, **Bold**, žodis Summary – išretintas 2 pt. (nedėkite tarpų tarp simbolių), teksto dydis – 9 pt., pirma eilutė įtraukta 0.5 cm.

- **Paveikslai** ir **diagramos** turi būti aiškūs, brėžiniai – sugrupuoti į vieną objektą.

Lentelės ir **schemos** turi būti sunumeruotos, ir turėti pavadinimus.

1. Lentelių pavadinimai rašomi virš lentelės centre.
2. Paveikslų pavadinimai rašomi po paveikslu centre.

Pateiktas tekstas papildomai redaguojamas nebus.

PASTABA. Patogu naudotis parengtu straipsnio šablonu.

Requirements for the authors, who want to publish their articles

The founder of a scientific journal "Vadyba" is Lithuania Business University of Applied Sciences. Since 2000, the journal publishes technology, social sciences and physic sciences-related articles. The main goal of the scientific journal articles and conducted research is to emphasize the problems and present possible solutions for the public and private organizations of the region. The articles can be both empirical and theoretical.

The submitted articles must be original, previously unpublished. It is prohibited to publish the articles of this journal in other publications.

General requirements

- Articles submitted to the Editorial Board must be professionally edited, without spelling, punctuation and style errors. The articles must use scientific language.
- Articles shall be written in English.
- **The article shall be up to 10 pages long. The last page should take at least half a page, i.e. about 2/3 of the page.**
- The structure of the article must have a structure of a scientific article. It must contain the following:

1. The **title** of the article. Article's **author, institution**, which the author is representing. **E-mail** of the author of the article.
2. **Abstract** with the main words in the language of the article. The Abstract should briefly cover the contents of the article; specify the aspect of how the problem will be analyzed. The text of the Abstract must be clear and concise. **The Abstract must contain at least 2000 characters.**
3. **Keywords –** these are the words that express the most important features of the topic. Five or six keywords of the article must be included in the Lithuanian National M. Mazvydas library records of authoritative names and subjects. It is possible to check if the keyword is included in this list in the website of the library: <http://aleph.library.lt/F/UYSMKM4NY8C9H33SP6PV8F2585NQU59CEEBJVCYCA3HUQNQCR5-31681?func=find-b-0&local_base=LBT10>, by specifying the "topic, subject (lit)" (in Lithuanian) and "topic, subject (eng)" (in English) in the search field.
4. **Introduction**, which formulates the purpose of the scientific study, discusses the question of the study, its novelty and degree of research, specifies the object of the study, objectives and methods.
5. **Analysis – article material**. The sub-sections of the article are *unnumbered.*
6. **Conclusions**. *Unnumbered.*
7. **References.** *Unnumbered.* References in the body of the article should be cited in parenthesis by indicating the surnames of the authors and year, e.g. (Cooper 1994), (Cleland J.; Kaufmann, G. 1998). If an internet source does not have an author, the link is placed only in the main text in parenthesis. Letters "p" and "pp" are not written next to the pages.
8. Examples of referencing:

Books

Valackienė, A. (2005). *Crisis Management and Decision-making*. Technology, Kaunas.

Berger, P. L., Luckmann, Th. (1999). *The Social Construction of Reality.* Pradai, Vilnius.

Journal articles

Boyle, T. (2003). Design principles for authoring dynamic, reusable learning objects. *Australian Journal of Educational Technology*, 19(1), 46–58.

Book articles

Curthoys, A. (1997), History and identity, in W. Hudson and G. Balton (eds), *Creating Australia: Changing Australian history*, 25 - 84. Allenn and Unwin, Australia.

Web documents

Wiley, D. A. (2003). Learning objects: difficulties and opportunities. [Retrieved March 18, 2009], <http://opencontent.org/docs/lo_do.pdf>.

Statistical information and web resources

Lithuanian Emigration Statistics. (2009). Statistics Lithuania to the Government of the Republic of Lithuania. [Retrieved February 16, 2009], <http://www.stat.gov.lt/lt/news/view/?id=6819&PHPSESSID=5b1f3c1064f99d8baf757cde1e135bc0>.

9. **Summary** with **the keywords** is written in English. **The summary should include at least 3000 characters.**
10. Short CV of the authors, which consists of: name, surname of the authors. Degree. Work. Occupation. Research direction. Address. Telephone. Other information about the author. The author CV must include **up to 3000 characters**.

Requirements for the outline and layout of the article

- The articles must be written in MS Word A4 pages.
- Document margins: top – 2 cm, bottom – 2 cm, left – 2 cm and right – 2 cm.
- Full text: in lowercase letters, aligned to both margins, size – 10 pt, font – Times New Roman, first line of the paragraph indented by 0.5 cm.
- Title of the article: in capital letters, left alignment, size – 14 pt., **Bold**.
- Author's name, surname: in lowercase letters, left alignment, size – 12 pt., **Bold**.

- Institution name: in lowercase letters, left alignment, 10 pt., *Italic*.
- E-mail: lowercase letters, left alignment, 10 pt., *Italic*.
- Abstracts: text size – 8 pt, title – 10 pt, **Bold**. A full stop is not put after the last main word.
- Section names: lowercase letters, left alignment, size – 11 pt., **Bold**.
- Word *references* – 10 pt, reference list – 9 pt.
- Summary in English language: article name in capital letters size 10 pt, **Bold**, word Summary – expanded by 2 pt. (do not put spaces between the characters), text size – 9 pt., first line indented by 0.5 cm.

- **Figures** and **diagrams** must be clear, schemes – grouped into a single object.

Tables and **schemes** have to be numbered and titled.

1. Table titles are written above the table in the centre.
2. Figure names are written under the figure in the centre.

The text will not be further edited.

NOTE. It is obligatory to use the prepared template for the article.

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