

## CONNECTION BETWEEN COMMUNITY STRATEGIES AND SUSTAINABLE FOOD CONSUMPTION

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### **ABSTRACT**

*Sustainability is tightly linked to the conception of food sovereignty, which has become a central issue for the international social movements dealing with agriculture during the past decade. According to the philosophy of the movement farmers have the right to produce local food products, and the consumers have the right to decide what they want to consume, who they want it to be produced by and how they want it to be produced. In this system it is task of the state to protect the local farms from the huge amount of agricultural product and food import. In the presentation the authors put great emphasis on highlighting the possibility of forming consumer patriotism, on the direct sale of agricultural and food products with special regard to the traditional and regional food products. The Hungarian food producers are fighting a losing battle against the import products flooding into our country. The price competition on the market causes them increasing losses, while their production efficiency is unable to improve significantly neither in the short, nor in the midterm. A direct result of this is that the Hungarian food producers – through price competition – are unable to keep their target markets, so they are forced to use other marketing tools. One possibility is to make consumer patriotism stronger among Hungarian consumers. If we are able to show the consumers' positive attitudes towards the Hungarian products, then the market strategy of the Hungarian food products can be supplemented with a new element. Another possibility for increasing the added value is to build the system of direct sale. An increasing number of producers realize in Western-Europe and in the United States that direct sale increases the profit significantly and also results in a certain level of independence from the processing industry and from trade. The farmers also know that there is a greater demand for reliable, healthy products with safe, origin, for which – in case of proper marketing influencing - they are willing to pay more. From the producers' view direct sale leads to a change in attitude as well: instead of the previous production conception they consider the consumers' demands too, they try to accommodate to them supply.*

Keywords: food sovereignty, ethnocentrism, labelling, sustainability

### **INTRODUCTION**

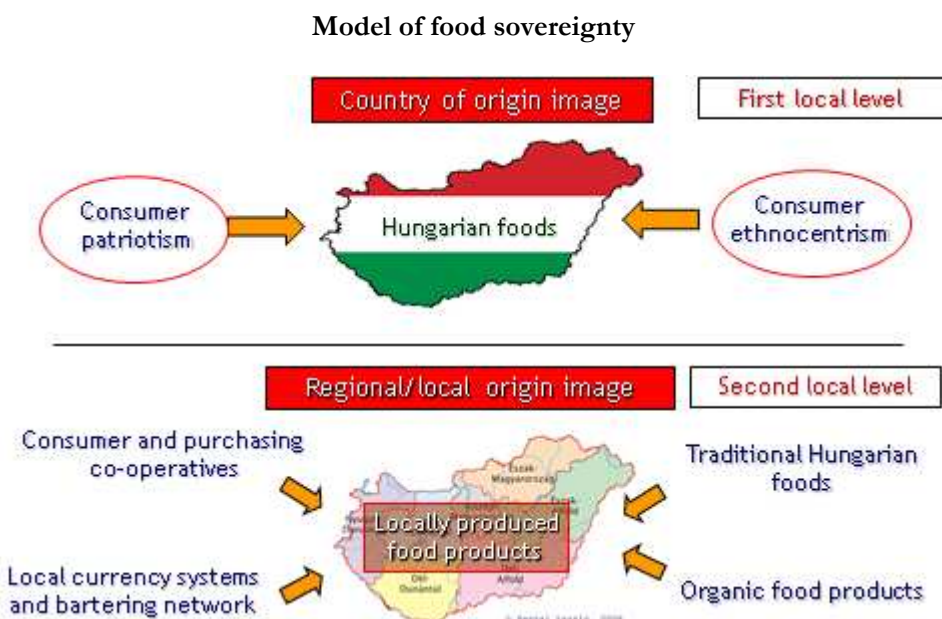
During the past years the harmful economic, social, environmental and cultural effects of globalization and free trade have been addressed with a lot of criticism. In this process there are few winners, but the number of the losers is increasing. The question arises: Who belong to the losers in economic sense? It is apparently the small national companies, among them the small agricultural producers, the small Hungarian food-processors as well as the retailers who have their own shops but do

not belong to the chains of retail stores. The core problem is that the production and the consumption are not linked to each other, for which the following statement is a sad example: because of the closing-down of local markets 75% of the poor and the hungry worldwide are small agricultural producers. Knowing these facts, we can ask the question: Is there a solution in this situation?

## FOOD SOVEREIGNTY MODEL

In our opinion *food sovereignty is a possible solution to the problem*. According to the philosophy of the movement the producers have the right to produce local (domestic) food product, and the consumers have the right to decide what they want to consume, who they want it to be produced by and how they want it to be produced. It is the task of the state to protect the local (domestic) farms from the vast amount of agricultural product and food import. If we want to summarize the main idea in one sentence, then the most important task is to reduce the spatial division of production and consumption. In other words it is best if the produced foods are consumed as close to the site of the production as possible. Based on this theory we worked out an integrated model which defines food sovereignty at two levels (*Figure 1*).

**Figure 1**



At the first local level the domestic (in this case the Hungarian) food products appear, the consumption of which is relatively close to the production site. In this case our task is to make the emotional affections for national products stronger (we can also call it a positive country of origin image), and its final manifestation is the

*high purchase rate*. At the second local level are the locally produced food products. The most important key words here are consumer and purchasing co-cooperatives, the local currency systems and bartering network, as well as at the level of the product category the so-called traditional Hungarian foods (the so-called *hungaricums*), and organic food products also belong here. The consumers' trust felt for this type of products manifests itself in the regional and local origin image. This model is able to ensure the *sustainable food consumption*, behind which there is a very strong consumer public awareness, that is solidarity with the national and local producers. In this paper we deal with the first local level that is with the ethnocentric and, within it, with the patriotic consumer behaviour in details.

### **The concept of ethnocentrism**

Ethnocentrism is the tendency to believe that one's ethnic or cultural group is centrally important, and that all other groups are measured in relation to one's own. Ethnocentrism is a kind of attitude to other groups from the group's own view. Ethnocentrism manifests itself in three forms (*Kosterman and Fesbach, 1989*).

- The first is the *patriotic way of thinking* in the centre of which is an adherence to the motherland, and patriotism. For us consumers advocating such principles may be a solution regarding the preference of domestic products (*Doob, 1964; Druckman, 1994*).
- The second group is made up of *people with national feelings*. These people see the solution in the supremacy and dominance of their own country (*Shafer and Robert, 1982*), and naturally it influences their product preference as well.
- The third category involves the so-called *cosmopolitans*, those who, regarding their attitudes towards other nations, are liberal that is they accept the products of other countries, too (*Yoon et al., 1994*).

Within this, consumer ethnocentrism means those convictions of the consumers that refer to the approval and morality of purchasing goods exported from a foreign country (*Shimp and Sharma, 1987*). Ethnocentric consumers regard the purchase of products originating from a foreign country inappropriate because it may threaten the domestic country's economy and employment (*Malota, 2003*). The consumers with such a way of thinking declare their solidarity with the Hungarian (domestic) producers and products; they characteristically buy Hungarian food products.

### **Research background of ethnocentrism**

Let's ask the question: Is there consumer ethnocentrism in Europe? Now let me investigate two other countries – Austria and France – besides Hungary. For the *Austrian food consumers* the most important factor influencing their shopping decision is the Austrian origin (for 28% of them), which precedes quality (15%) and price (11%). In other words we could say that *consumers' public awareness or ethnocentrism is very strong in Austria*. 7-9 persons in 10 consumers in Austria buy only Austrian cheeses, meat products, or Austrian wines.

According to *French people* a good quality food product can have only French origin. The French produce over 1000 different types of cheese and most of them

are available in the local chains of retail stores and in specialized cheese shops. *French consumers do not think about not buying French products.*

But what is the situation like in Hungary? According to the results of a survey which was carried out at the beginning of the 1990s, it was only the Hungarians among eight countries' consumers who did not buy their own products most frequently and who were the least satisfied with them. The situation did not change in 2000 either: from 15 countries – together with the Indonesian people – it was the Hungarians who preferred their own products the least. *Malota's* (2003) researches supported that the Hungarian consumers, based on quality parameters, ranked their domestic products behind the German and Canadian products, and the Hungarian products preceded only the Czech products.

But has the situation changed since then? To come clear with it we launched a nationwide consumer survey. Our aim was to analyse consumer ethnocentrism and its influence on the judgement of the Hungarian food products. Regarding this we compiled a model the starting point of which is the positive ethnocentrism that is the patriotic way of thinking. We can talk about consumer ethnocentrism, the forming of country of origin image, the preference of domestic food products and finally about a positive shopping intention if the rate of patriots is high in a country.

Now let's see each point of the model and let's find out how much Hungarians are patriots?

- I like Hungarians in general, say 78.2% of them.
- I have emotions for Hungary, say 75.8% of them.
- I am proud to be Hungarian, say 75.3% of them.
- The Hungarians, besides their national status, have other common features unifying them (say 75%).
- As a summary we can state that 8 in 10 Hungarians have emotions for their own country (*Szakály et al.*, 2009).

## **ETHNOCENTRISM AND CONSUMER BEHAVIOUR**

The question is whether this positive attitude appears in the refusal of the foreign products? It seems that the first contradiction in the consumers' way of thinking appears here. According to 83% of the respondents workplaces can be saved by purchasing domestic products. On the contrary to this, 70% of them think that those who buy foreign products are not responsible for the job losses of fellow countrymen (this is the first contradiction). 70% of the consumers state that all import activities should be strictly regulated. However, according to 65% of the consumers foreign companies have the right to display their products on the Hungarian market. 70% of the respondents think that we should import such products from abroad that cannot be produced in Hungary. Contrary to this, according to 60% of the consumers a real patriot does not always have to buy food products produced in his or her own country.

But how to explain the obtained results? On the one hand, the *Hungarian consumers moralize*, which costs nothing, on the other hand, *they do not take responsibility for their acts*. We can summarize that in general they agree with the preference of



Hungarian products, but in a particular case they think differently. This contradictory situation is called *ethnocentrism paradox* by us.

But do they think the same about the domestic food products? In our survey the image of the Hungarian food products was compared to the image of the German and French food products. In general it can be stated that based on the listed features the *Hungarian food products were qualified the best, overtaking the German and the French products*. The opinions about the reliability, quality, variety and price of the Hungarian products are extremely positive. The consumers are satisfied with the Hungarian food products and they emotionally identify themselves with them.) The Hungarian food conception does not seem to have a weak point.

After this we ask the most important question: does this positive image appear in the shopping frequency of the Hungarian food products? According to our results as you can see in *Table 1*.

**Table 1**

**Likelihood and shopping frequency**

Hungarian food products are...	Divisions of answers	
	head	%
...liked and purchased regularly.	349	34.9
...liked, but not purchased regularly.	402	40.2
...liked, but their origin is not considered.	200	20.2
...not likes and their origin is not considered.	17	1.7
uncertain consumers	32	3.2

Source: *Szakály et al., 2009*

According to the results 34.9% of the respondents like and regularly purchase Hungarian food products, that is they can be regarded the primary target group of the Hungarian food products. 40.2% of the respondents like but do not regularly buy Hungarian food products, they may be won to buy Hungarian food products with appropriate marketing communication. If it is a success, then we would reach that patriot level (7-9 consumers) that characterizes the developed Western-European countries today. 20% of the shoppers like but are uninterested in the origin of the product, while the rate of those who do not like Hungarian food products and do not care about their origin is very low (only 1.7%). The rate of uncertain people is only 3.2%. What do the above results mean? They mean that the rate of liking is 95% compared to 35% regular shoppers. This is what we call the *first food paradox*.

What is responsible for the difference between liking and shopping? According to our results it is the price. We put the consumers the following question: If you had a foreign and a Hungarian food product of the same price, then would you prefer to buy the Hungarian product opposed to the foreign one? 77% of the respondents said yes, which is a very favourable rate. But what if the Hungarian product is more expensive? In this case only 25% of the consumers say yes, that is

due to the higher price we have lost 5 consumers. We do not believe the situation would get better if the Hungarian product had a trade-mark displayed on it to show the Hungarian origin. In this case 31% of the consumers would buy the Hungarian product. As a summary it can be stated that at present 3 in 10 consumers can be considered to have a commitment to Hungarian food products in the course of their shopping.

But why do we have only 3 consumers? Because today consumer behaviour is shaped not by collective (community) marketing, but by the profit oriented companies, among them it is the sales strategy of the retail chain stores that has the greatest influence on the consumers' behaviour. The chain stores invite the consumers into their shops with continuous low prices, where only price matters, but not the origin of the product. The phenomenon is called a price terror by us. They do it because they are totally aware that 88% of the Hungarian consumers look for sales and price reductions. In this respect the Hungarian consumers are the closest to the German consumers.

What is the final result of this process? It is that for the Hungarian consumers a good bargain is the most important and because in most cases the foreign food products are available at a lower price, this is why *7 in 10 Hungarians prefer the import food products*. As a result of this the products produced in Hungary continuously disappear from the shelves of the shops. According to a recent survey (Kasza, 2010) the rate of the Hungarian food products was 76.4% in the chain stores in Hungary, which is a very low rate compared to 92% in 2003.

### **Consumer perception of labelling**

The question arises: what possibilities do we have in this situation? One possibility is a *voluntary obligation of the retailers* to sell Hungarian food products. But considering the experience of the previous years this plan does not work. This is why we have another one left: to increase the loyalty of the Hungarian consumers towards Hungarian food products. An excellent tool for this can be a label guaranteeing Hungarian origin and quality. But at this stage another question arises, how much are labels important for the Hungarian consumers?

According to 73.5% of the Hungarian shoppers labels referring to quality are important. According to 68.5% of the respondents it is important that the consumers have information about the place of origin on the package. For 67.7% of the consumers it is important to see labels giving information about the production method of the product. The results show that for 6-7 in 10 consumers labels are important, however, only 23% trust them. In Austria this rate was 87% in 2007. The significant difference between importance and trust is called the *second food-paradox*.

First of all this paradox situation is caused by that the spontaneous knowledge of labels is very low. According to our research the knowledge of the trademark label "Hungarian product" is rateable, 30.5% of the respondents mentioned it spontaneously. The rate of the mentioning of the other labels is under 10%, e.g. label "Made in Hungary", which is a very low rate. However, the most astonishing thing is that the most important Hungarian trademark label "Quality Food from Hungary" did not get a rateable rate of spontaneous mentioning.

In the next step the consumers were assisted by being shown the visual picture of trademark labels and they were asked to indicate if they recognized them. In this case the rate of knowledge was higher than the rate of spontaneous mentioning. The greatest rate of mentioning had the “Hungarian product” trademark label with 90%, which is followed by the “Made in Hungary” and the “Quality Food from Hungary” trademark labels of the same rates. We called this significant difference between the spontaneous knowledge and the so-called assisted knowledge the “third food-paradox”. But the question may arise: what is the message of this paradox situation?

The Hungarian consumers have only passive information about the trademark labels referring to the origin and quality, so only few of them can recall them spontaneously. But this passive knowledge can become active if they see the trademark labels on the package of the products.

Then based on the above: which are the most important anomalies? On the one hand, the consumers do not have appropriate information, this is the reason why a necessary level of trust in trademarks does not exist, and it has a negative influence on the shopping willingness.

## **CONCLUSION AND SUGGESTIONS**

In this situation a community marketing strategy to be followed has to be defined as well as the strategic aims. The first step of this process is to inform the consumers and in this way to improve trust. The next step is to make the consumers realize the importance of trademark labels, their feelings for the labels have to be shaped, and finally they have to be oriented in and motivated for shopping. If this community marketing strategy is a success, then we can talk about a conscious trademark strategy that will take shape in loyalty towards domestic products.

Then let's put the most important question: what will be the future of the Hungarian food products? Maybe the “Red ocean” strategy where companies compete with the same products for the same market, and they are slowly drained of blood by each other and the water of the ocean becomes red with blood? If this happens, then there will be no domestic innovation, no common marketing action, no consumers' consciousness forming, no distinguishing label, and as a result of this the producers will be forced into a continuous price-rivalry with the import products arriving from far places. In my opinion we should refuse this strategy and had better visualize the “Blue ocean” strategy. In this case domestic innovation, community marketing, consumers' loyalty, a differentiating trademark, consumers' public awareness already exist, and finally we can develop Hungarian food products of shaping and not following position.

But what is the main idea of the shaping position? Domestic food products have to be enjoyable and healthy with a modern image, they also have to have an excellent quality and have to be of Hungarian origin. These five factors together are able to shape the positive beliefs of and attitudes towards Hungarian food products, the final result of which can be the realized action, in other words high shopping willingness.

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## INTERNATIONAL ACCOUNTING STANDARDIZATION PRACTICE IN HUNGARY

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### **ABSTRACT**

*The goal of this study is to describe and summarize the differences between national accounting rules and international standards and to evaluate and analyze their effects on business decisions, management performance, and the economic environment in Hungary. The unified, standardized accounting information system will lead to new types of analysis and data and the possible integration of new indicators from the business management of certain countries. It is very important for managers and researchers to evaluate and analyze the effects of international accounting standards on the business environment, especially on their contribution to harmonization and globalization. Financial data is from published financial statements and the Hungarian Business Information database. My sample comprises 65 international standards and 260 local accounting rules. This paper shows that both businesses earnings and stock returns affect management turnover. Businesses with lower labour productivity compared to their industry peers have greater incentives to adopt international accounting standards. National accounting rules are followed by firms with higher leverage and lagging sales growth and with more frequent employee layoffs. Standards user enterprises' employee layoffs are more a response to accounting performance in the post-adoption period. However, the results on turnover are sensitive to this change in variable specification. So the increase in the sensitivity of turnover to accounting performance post-adoption is primarily driven by heightened turnover sensitivity to accounting losses. The results of applied regression model support the notion that a business structure wherein accounting earnings are linked to performance evaluations is more frequent in businesses working to adopt international accounting standards.*

**Keywords:** economics of accounting standards, business effects, standardization, harmonization, value based management

### **INTRODUCTION**

In today's business environment, companies need to take every advantage they can to remain competitive. Global competition, rapid innovation, entrepreneurial competitors, and increasingly demanding customers have altered the nature of competition in the marketplace. This new competitive environment requires companies' ability to create value for their customers and to differentiate themselves from their competitors through the formulation of a clear business strategy. Business strategy must be supported by appropriate organizational factors such as effective manufacturing process, organizational design and accounting information systems too.

Modern business environments are increasingly competitive and dynamic. International competition through e-commerce and demand-based supply chain management dominate business. It is important for companies to develop coherent and consistent business strategies and to utilize management accounting tools to support strategic planning, decision-making and control. To integrate business strategies with various management accounting tools, first companies need to identify which business they are in. It is essential to identify products and services, customer types, geographical markets, and delivery channels. It is useful to match the strategic business unit (SBU) with the related business unit strategy. An SBU is a company department or sub-section which has a distinct external market for goods or services that differ from another SBU. A business unit strategy is about how to compete successfully in particular markets. It is important to focus on a certain segment, such as environmentally friendly cars in the automobile industry or internet and phone banking in the retail banking industry.

To be successful in this cut-throat competition business world is very tough particularly if you are not too familiar with the diverse strategies which are needed to make a business successful. If you cannot make a success story out of your business, there is no use of operating a business. You must have to undertake some strategies to run your business successful. These strategies are accounting, bookkeeping, marketing, promotion, production and manufacturing. Now what a business owner needs to do is prioritize work - what need to be done on priority basis. And this will vary greatly from business to business. Accounting help is something that any business requires to embark on, in particular if you are operating a large scale business. If you are running a small or mid-size business than you can easily handle the accounting work without obtaining professional assistance.

Generally, in a very large company, each division has a top accountant called the controller, and much of the management accounting that is done in these divisions comes under the leadership of the controller. On the other hand, the controller usually reports to the vice president of finance for the division who, in turn, reports to the division's president and/or overall chief financial officer (CFO). All of these individuals are responsible for the flow of good accounting information that supports the planning, control, and evaluation work that takes place within the organization.

Business management requires that resource consumption be measured, rated, assigned, and communicated between appropriate parties. Managers of businesses use accounting information to set goals for their organizations, to evaluate their progress toward those goals, and to take corrective action if necessary. Decisions based on accounting information may include which building and equipment to purchase, how much merchandise inventory to keep on hand, and how much cash to borrow, etc. Modern accounting renders its services to a wide variety of users: investors, government agencies, the public, and management of enterprises, to mention but a few. Many accountants work in business firms as managerial accountants, internal auditors, income tax specialists, systems experts, controllers, management consultants, financial vice presidents, and chief executives.

Accounting will help a business or organization to keep a proper record of all the financial aspect. Therefore, every individual or business requires keeping a track

of all the financial dealings that they do on a daily basis. Because this is the only thing that will measure how well or how bad their business is doing. Many times it happens that the person managing the accounting and other financial aspect of the business does not make a habit to keep track on all the financial records on daily or weekly basis. Thus, business owner may not get the proper picture for their business – how good or how bad business is doing. This is true especially with small and mid-size businesses. It is very vital to have all the things well organized and documented, especially if you are of those who forget things.

Accounting is something that no one can avoid and therefore one must ensure that they get the best professionals to do the work for them. There are quite a lot of companies that offer accounting help with other bookkeeping and accounting services to individuals and business owners who are looking out for these services. If you have a glance at global accounting outsourcing statistics, you will notice that an increasingly large number of businesses are undertaking this strategy for their business success. Hence, if your name is yet to be in those statistics, it is a good time for you to seek accounting help for your business. There are number of advantages of outsourcing your accounting, and this is the cause why there is a vast flow in the number of business owners and entrepreneurs opening up to the idea of outsourcing their work.

To have strategic value, management accounting must help accomplish the three strategic objectives of quality, cost, and time by providing information that:

1. Links the daily actions of managers to the strategic objectives of an organization.
2. Enables managers to effectively involve the entire extended enterprise of customers, suppliers, dealers, and recyclers in achieving the strategic objectives.
3. Takes a long-term view of organizational strategies and actions.

The purpose of management accounting in the organization is to support competitive decision making by collecting, processing, and communicating information that helps management plan, control, and evaluate business processes and company strategy. The interesting thing about management accounting is that it is rare to find an individual within a company with the title of “management accountant.” Often many individuals function as accountants within the organization, but these individuals typically operate as financial accountants, costs accountants, tax accountants, or internal auditors. However, the ability to develop and use good management accounting (which covers a lot more ground than the product costing done by cost accountants) is actually an important ability for many individuals, including finance professionals, operational and marketing managers, top-level executives, and information technologists.

The fundamental purpose of management accounting is to help an organization achieve its strategic objectives. Meeting these objectives satisfies the needs of its customers and other stakeholders. Typical stakeholders include shareholders, creditors, suppliers, employees, and labor unions. Corporations need to implement adequate internal controls, guidelines and policies to stay competitive and increase profit levels. Senior leaders rely on management accounting and strategy tools to review corporate processes and make short-term and long-term decisions.

The role of the management accountant is to perform a series of tasks to ensure their company's financial security, handling essentially all financial matters and thus helping to drive the business's overall management and strategy. A management accountant's responsibilities can range widely. Depending on the company, your level of experience, the time of year and the type of industry, you could find yourself doing anything from budgeting, handling taxes and managing assets to helping determine compensation and benefits packages and aiding in strategic planning.

International management accounting is the practical application of management techniques to control and report on the financial resources of the business entities. This involves the analysis, planning, implementation, and control of programs designed to provide financial reporting for managerial decision making. It is covering the maintenance of the accounts, developing financial statements, cash flow and financial performance analysis. Since accounting applications do not have uniform security and reliability requirements, it is not possible to devise a single accounting protocol and set of security services that will meet all needs. Thus the goal of management accounting is to provide a set of tools that can be used to meet the requirements of each application. International management accounting requires that resource consumption be measured, rated, assigned, and communicated between appropriate parties. Especially the multinational companies spend enormous money for preparing and auditing their accounting reports according to the different national regulations. For these multinational companies the aspects of maximizing the profit is significantly more important than the consideration of national interest or the geographical position. Because of this there is a demand for creating such accounting systems which are evaluating the economic results equally.

With increasing globalization of the marketplace, international investors need access to financial information based on harmonized accounting methods and procedures. Investors constantly face economic choices that require a comparison of financial information. Without harmonization in the underlying methodology of financial reports, real economic differences cannot be separated from alternative accounting methods and procedures. Harmonization is used as a reconciliation of different points of view, which is more practical than uniformity, which may impose one country's accounting point of view on all others. Organizations, private or public, need information to coordinate its various investments in different sectors of the economy. With the growth of international business transactions by private and public entities, the need to coordinate different investment decisions has increased.

According to the business practice it is obvious that the usage of international accounting principles leads to a reduction of the information asymmetry between the owners and the managers. By this information asymmetry are growing the costs of equities and are less accurate the economical and financial forecasts. This requires the development and review of the national accounting rules, the separate validation of the tax and accounting regulation, the repeal of the subordinate role of accounting, issuing international standards with the help of practical and theoretical accounting experts.

International Financial Reporting Standards (IFRS) are accounting principles, methods ('standards') issued by the International Accounting Standards Board (IASB),



an independent organization based in London. They purport to be a set of standards that ideally would apply equally to financial reporting by public companies worldwide. Between 1973 and 2000, international standards were issued by IASB's predecessor organization, the International Accounting Committee (IASC), a body established in 1973 by the professional accountancy bodies in Australia, Canada, France, Germany, Japan, Mexico, Netherlands, United Kingdom and Ireland, and the United States. During that period, the IASC's principles were described as 'International Accounting Standards' (IAS). Since April 2001, this rule-making function has been taken over by a newly-reconstituted IASB. From this time on the IASB describes its rules under the new label 'IFRS', though it continue to recognize (accept as legitimate) the prior rules (IAS) issued by the old standard-setter (IASC). The IASB is better-funded, better-staffed and more independent than its predecessor, the IASC. Nevertheless, there has been substantial continuity across time in its viewpoint and in its accounting standards.

Standardization is the process of developing and agreeing upon technical standards. The standard is a document that establishes uniform engineering or technical specifications, criteria, methods, processes, or practices. Some standards are mandatory while others are voluntary. Voluntary standards are available if one chooses to use them. Some are de facto standards meaning a norm or requirement which has an informal but dominant status. Some standards are de jure meaning formal legal requirements. Formal standards organizations such as the International Organization for Standardization or the American National Standards Institute are independent of the manufacturers of the goods for which they publish standards.

The objective of this study was the measuring the differences between the national rules and the international methods, the valuing and analyzing their effects on the business decisions. This study examines the periods before and after the official adoption of IFRS. My paper investigates whether IFRS adoption reduces the level of earnings management and enhances the value relevance of international methods-based accounting numbers, especially in business performances.

This study examines the impact of the adoption of international accounting standards on the management performance of businesses listed on the Budapest Stock Exchange in Hungary. The research work also seeks to identify the financial attributes of enterprises that national rules employed by the requirements of the Hungarian Financial Ministry.

This survey contains information on how local, national accounting rules differ from IFRS on incorporating recognition, measurement, and disclosure rules.

## **PREVIOUS RELATED LITERATURE REVIEW**

International accounting literature provides evidence that accounting quality has economic consequences, such as costs of capital (*Leuz and Verrecchia, 2000*), efficiency of capital allocation (*Bushman and Piotroski, 2006*) and international capital mobility (*Guenther and Young, 2002*).

*Epstein (2009)* compared characteristics of accounting amounts for companies that adopted IFRS to a matched sample of companies that did not, and found that the former evidenced less earnings management, more timely loss recognition, and

more value relevance of accounting amount than did the latter. This study found that IFRS adopters had a higher frequency of large negative net income and generally exhibited higher accounting quality in the post-adoption period than they did in the pre-adoption period. The results suggested an improvement in accounting quality associated with using IFRS.

*Botsari and Meeks* (2008) found that first time mandatory adopters experience statistically significant increases in market liquidity and value after IFRS reporting becomes mandatory. The effects were found to range in magnitude from 3 to 6% for market liquidity and from 2 to 4% for company by market capitalization to the value of its assets by their replacement value.

*Daske et al.* (2007) also found that the capital market benefits were present only in countries with strict enforcement and in countries where the institutional environment provides strong incentives for transparent filings. In the order of the IFRS adoption countries, market liquidity and value remained largely unchanged in the year of the mandate. In addition, the effects of mandatory adoption were stronger in countries that had larger differences between national GAAP (*General Accepted Accounting Principles*) and IFRS, or without a pre-existing convergence strategy toward IFRS reporting.

The increased transparency promised by IFRS also could cause a similar increase in the efficiency of contracting between firms and lenders. In particular, timelier loss recognition in the financial statements triggers debt covenants violations more quickly after firms experience economic losses that decrease the value of outstanding debt (*Ball and Shivakumar*, 2005; *Ball and Lakshmann*, 2006).

Accounting theory argues that financial reporting reduces information asymmetry by disclosing relevant and timely information for example *Frankel and Li* (2004). Because there is considerable variation in accounting quality and economic efficiency across countries, international accounting systems provide an interesting setting to examine the economic consequences of financial reporting. The European Union's (EU) movement to IFRS may provide new insights as firms from different legal and accounting systems adopt a single accounting standard at the same time. Improvement in the information environment following change to IFRS is contingent on at least two factors, however. First, improvement is based upon the premise that change to IFRS constitutes change to a GAAP that induces higher quality financial reporting. For example, *Ball et al.* (2006a) found that the accounting system is a complementary component of the country's overall institutional system and it is also determined by firms' incentives for financial reporting. *La Porta et al.* (1998) provide the first investigation of the legal system's effect on a country's financial system. The results suggested that common law countries have better accounting systems and better protection of investors than code law countries.

Other factors associated with financial reporting quality include the tax system (*Daske and Gebhardt*, 2006), ownership structure (*Jermakovicz et al.*, 2007, *Burgstahler et al.*, 2006), the political system (*Li and Meeks*, 2006), capital's structure and capital market development (*Ali et al.*, 2000). Therefore, controlling for these institutional and firm-level factors becomes an important task in the empirical research design. As a result of the interdependence between accounting standards and the country's

institutional setting and firms' incentives, the economic consequences of changing accounting systems may vary across countries. Few papers have examined how these factors affect the economic consequences of changing accounting standards. For example, *Pincus et al.* (2007) found that accrual anomaly is more prevalent in common law countries. *Maskus et al.* (2005) found that accounting quality is associated with tax reporting incentives. Exploration of the interaction between these factors and the accounting information system can provide insights into differences in the economic consequences of changing accounting principles across countries.

Prior researches for example, *Meeks and Meeks* (2002) have raised substantial doubt regarding whether a global accounting standard would result in comparable accounting around the world. But differences in accounting practices across countries can result in similar economic transactions being recorded differently. This lack comparability complicates cross-border financial analysis and investment. In the researches of *Iatridis and Rouvolis* (2010) are some evidence of earnings management (e.g. reducing of transition costs and information asymmetry, benefits of investors in investment strategy). They showed how firms that operate in a non-common-law countries (e.g. Greece), which is stakeholder-based respond to international accounting standards adoption as compared to shareholder-based systems (e.g. United Kingdom).

No matter how similar the accounting standards in different countries are, there will be slight or even bigger differences in the way they are applied by companies due to the differences in the economical, political and cultural environment. Prior researches have raised substantial doubt regarding whether a global accounting information system would result in comparable accounting around the world. But differences in accounting practices across countries can result in similar economic transactions being recorded differently. *Chatterjee* (2006) presented in his study how cultural differences can affect accounting practices is that in the countries which are characterized with small power distance and weak uncertainty avoidance accounting measures are more likely to be used as an indicator of a manager's performance than as a measure of the effectiveness of policies and procedures prescribed for them. Various researches draw the conclusion that countries having different cultures have also different accounting rules and practices.

## **MATERIALS AND METHODS**

My research is based on a qualitative comparative approach. In order to identify the results of my scientific research about the evaluation of the accounting standards in Hungary I have elaborated the following hypotheses:

- H<sub>1</sub>:** The Balance Sheet indexes deteriorated especially regarding solvency and prosperity after adaptation of IFRS in the examined companies' case.
- H<sub>2</sub>:** IFRS adoption reduced earnings management.
- H<sub>3</sub>:** Large losses tend not to be frequent after IFRS adoption decisions.
- H<sub>4</sub>:** Business management has higher value relevance after post-adoption period.

The purpose of this study was the measuring the differences between the national rules and the international methods, the valuing and analyzing their effects on the business

decisions. This survey contains information on how local, national accounting rules differ from IFRS on incorporating recognition, measurement, and disclosure rules.

To analyze business adoption decision my sample consists of Budapest Exchange Trade (BET) companies who compulsory adopted international financial reporting standards in Hungary, from 2007. In this research the pre-adoption examination period is in year of 2006 and the post-adoption is in year of 2007. My final sample comprises 65 IFRS adopting and 260 local (Hungarian) accounting rules user firms. The manufacturing enterprises have the largest representation in my sample. The study excluded banks, insurances, pensions and brokerages since their accounting measures are not always comparable with industrial sectors. My samples consist of shareholders companies with Hungarian headquarters and employed more than yearly average 50 employees.

## RESULTS

For the chosen of the national accounting rules user enterprises I introduced mathematic-statistic methods. An alternative approach it to create a matched sample of local rules businesses based on criteria such as year and industry. It is chosen to incorporate all local rules firms due to methodological concerns about the matched-pairs research design. Financial data are from published accounting statements in BET and Hungarian Business Information database. In my sample the businesses are classified into those following IFRS and those following national accounting rules.

### Accounting methods and Balance Sheet effects

This set of analyses measures how Hungarian enterprises have been affected on management performance by IFRS. The logistic regression models employed are as follows (1, 2):

$$\begin{aligned} RR_{i,t} = & a_0 + a_1 \text{Size}_{i,t} + a_2 \text{Dividend}_{i,t} + a_3 \text{Growth}_{i,t} + a_4 \text{Profitability}_{i,t} + \\ & + a_5 \text{Liquidity}_{i,t} + a_6 \text{Leverage}_{i,t} + e_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} PA_{i,t} = & a_0 + a_1 \text{Size}_{i,t} + a_2 \text{Dividend}_{i,t} + a_3 \text{Growth}_{i,t} + a_4 \text{Profitability}_{i,t} + \\ & + a_5 \text{Liquidity}_{i,t} + a_6 \text{Leverage}_{i,t} + e_{i,t} \end{aligned} \quad (2)$$

Where:

- $RR_{i,t}$  = dummy variable, indicating the regulatory system,  
 $RR_{i,t} = 1$ , financial numbers are reported under IFRS,  
 $RR_{i,t} = 0$ , financial numbers are reported under National GAAP,  
 $PA_{i,t}$  = dummy variable, indicating the post-adoption effects.  
 $PA_{i,t} = 1$ , financial numbers are reported under IFRS in 2007  
 $PA_{i,t} = 0$ , financial numbers are reported under IFRS in 2006

Size: Natural logarithm of market capitalization:

- NAVSH: Net asset value per share
- RESSFU: Reserves to shareholders' funds

Dividend:

- DIVCOV: Dividend cover
- DIVSH: Dividend per share
- DIVYI: Dividend yield.

Growth:

- MVBV: Market value to book value

Profitability:

- EPS: Earnings per share
- NPM: Net profit margin
- ROCE: Return on capital employed

Liquidity:

- CFM: Cash flow margin
- CUR: Current ratio
- OCF: Operating cash flow scaled by total assets
- QUI: Quick ratio
- WCR: Working capital ratio

Leverage:

- DEBTE: Debt to equity
- DSFU: Debt to shareholders' funds
- CGEAR: Capital gearing

$e_{i,t}$  = the error term

It is provable by the *Table 1* that the average index of dividend, share (coming from earnings after tax) is more prosperous at companies which already adapted the international financial reporting standards (IFRS) than in case of others. However, the relative average value (DIVYI) contains a high deviation (the deviation value is almost 30 in case of companies operating with IFRS).

The companies applying the national accounting standards are gaining more than double (5.8152) in terms of growth, measured by market value of assets to historical value of assets, respect to other enterprises. In this sense the IFRS user companies' average index is much lower.

The monitored enterprises had a negative average net profit value (loss) in both group in the covered period. However the return on equity and the average return on capital employed give better results in case of national accounting standards users. The latter index showed a declining tendency (-0.0081) at companies which adapted the IFRS.

The examined national accounting standard user companies' average indexes, measuring solvency (OCF, CUR, CFM) and leverage were more prosperous than the other ones'. The Cash Flow, for instance, decreased (-0.0408) at IFRS user companies, though around the relative average value of Operating Cash Flow on assets the deviation is quite high (it is between 15 and 17). As the indebtedness of companies accounting according to national regulation was lower, the leverage indexes (DEBTE, CGEAR, DSFU) were better than the other companies which adapted IFRS.

**Table 1**

**Balance Sheet effects**

Denomination	National GAAP employed enterprises		IFRS adopter enterprises	
	Mean	Std. deviation	Mean	Std. deviation
DIVSH	0.0846	0.1986	0.1557	0.2106
DIVYI	17.5764	19.8721	22.8705	25.4457
MVBV	5.8152	7.8125	2.5478	8.1547
NPM	-0.2945	4.5412	-0.1031	7.4581
EPS	0.1987	1.0561	0.1897	1.5061
ROCE	0.2008	0.3051	-0.0081	0.6401
OCF	3.8812	15.4421	4.8512	16.8041
CUR	1.9911	6.9105	2.9814	3.1125
CFM	0.8029	2.3126	-0.0408	1.5974
DEBTE	1.9843	2.3566	2.3099	2.1577
CGEAR	0.3454	0.2325	0.8714	0.3115
DSFU	0.3258	0.1353	0.5469	0.8540

To sum up, it can be stated that the Balance Sheet indexes deteriorated especially regarding solvency and prosperity after adaptation of IFRS in the examined companies' case.

**Accounting methods and earnings management**

The first earnings management test measured the volatility of the change in net profit scaled by total assets,  $\Delta NP$ , and the volatility of the change in net profit to the change in operating cash flows,  $\Delta CF$  for the national GAAP employed and the IFRS adopted enterprises.

The second earnings management test examined the associations between accruals and cash flows. My scientific research evaluated the Pearson correlation between accruals and cash flows separately in the pre-official, official and post-official adoption periods. Then the author employed an Ordinary Least Square (OLS) regression, followed *Iatridis and Rowolis* (2010) researches, to analyze the associations between accruals and cash flows, profitability, leverage and size. The regression model that is used is as follows (3):

$$\begin{aligned}
 ACCR_{i,t} = & a_0 + a_1FRS_{i,t} + a_2FRSOCF_{i,t} + a_3FRSLNMV_{i,t} + a_4FRSOPM_{i,t} + \\
 & + a_5FRSTLSFU_{i,t} + e_i
 \end{aligned}
 \tag{3}$$

Where:

$ACCR_{i,t}$ = Accruals scaled by total assets.

$FRS_{i,t}$ = Dummy variable indicating the financial reporting system in use.

$FRS_{i,t} = 1$  for firms reporting under IFRS in 2007,

$FRS_{i,t} = 0$  for firms reporting under the National GAAP in 2006.

OCF =	Multiplication of IFRS and operating cash flows.
FRSOCF <sub>i,t</sub> =	Variable used to examine the impact of IFRS on the association between accruals and cash flows.
LNMV =	Multiplication of IFRS and the natural logarithm of market value.
FRSLNMV <sub>i,t</sub> =	Variable used to examine the impact of IFRS on the association between accruals and size.
OPM =	Multiplication of IFRS and operating profits margin.
FRSOPM <sub>i,t</sub> =	Variable used to examine the impact of IFRS on the association between accruals and profitability.
TLSFU =	Multiplication of IFRS and total liabilities to shareholders' funds.
FRSTLSFU <sub>i,t</sub> =	Variable used to examine the impact of IFRS on the association between accruals and leverage.

The results of the previous regression model (3) the author summarized in *Table 2*.

**Table 2**

**Earnings management effects**

Denomination	National GAAP followed enterprises	IFRS adopter enterprises
ΔNP volatility	4.1581	6.1021
ΔNP/ΔCF volatility	11.4401	12.0120
FRSOCF	-1.21**	-0.7145**
FRSLNMV	-0.025**	-0.014*
FRSOPM	0.5541**	0.2145**
FRSTLSFU	-0.2574**	-0.1941**
R <sup>2</sup>	0.784	0.815

\*Statistical significance at 10% level (two-tailed); \*\*Statistical significance at 1% level (two-tailed).

According to the results of the table it can be stated that the companies which adapted IFRS reached a higher volatility in Net Profit value change (ΔNP) and in Net Profit value change/Operating Cash Flow value change (ΔNP/ΔCF). Being so, the volatility did not decline after the standard adaptation, contrary to the companies using national accounting standards.

The coefficient of correlation between deferred items, namely Accrued Charges and Cash Flow (FRSOCF) had a negative value in a significance level of 5 % in both group, even so, the leaders of the national accounting principle user companies gained higher income (-1.21).

The coefficient showing correlation between deferred items (accruals) and size of the company (FRSLNMV) was also negative: (-0.025) in a significance level of 10%, (-0.014) in a significance level of 5%; accordingly even the bigger companies using IAS/IFRS could not insert totally the principles of accounting accruals in their system yet.

Similarly, the companies which already adapted IFRS did not increase their Accrued Charges as a consequence of high indebtedness, which is showed by the coefficient of correlation between deferred items (accruals) and leverage (FRSTLSFU) being (-0.1941).

The coefficient of correlation between deferred items and profitability (FRSOPM) is significantly positive in both groups of companies. However, it is worthy of note that the companies achieving lower profitability are less willing to adapt accrual principles into their accounting policy.

As a conclusion, it is my conviction that the practical results for instance, in case of FRSOFC, have proven my assumption that the income level of concerned leaders of companies which adapted the IFRS is decreased in a significance level of 5%.

### Accounting methods and P&L effects

This research examined whether enterprises determine small positive profits than large losses. Previous studies [e.g. *Burgstahler and Dichev (1997)*, *Leuz et al. (2003)*] suggested that large losses tend not to be frequent. Our analysis employed the next model (4):

$$RR_{i,t} = a_0 + a_1 \text{Profitability}_{i,t} + a_2 \text{Dividend}_{i,t} + a_3 \text{Growth}_{i,t} + a_4 \text{Size}_{i,t} + a_5 \text{Likvidity}_{i,t} + a_6 \text{Leverage}_{i,t} + a_7 \text{SP}_{i,t} + a_8 \text{LL}_{i,t} + e_{i,t} \quad (4)$$

Where:

$\text{SP}_{i,t}$  = dummy variable indicating a measure of small positive profits.

$\text{SP}_{i,t} = 1$  if net profit scaled by total assets is between 0 and 0.01,

$\text{SP}_{i,t} = 0$  otherwise.

$\text{LL}_i$  = dummy variable indicating a measure of timely loss recognition.

$\text{LL}_{i,t} = 1$  if net profit scaled by total assets is less than - 0.20,

$\text{LL}_{i,t} = 0$  otherwise.

The results of model (4) are reported in *Table 3*.

**Table 3**

#### P & L effects

Denomination	IFRS adopter enterprises	National GAAP followed enterprises
SP	-1.194**	0.451
LL	2.581*	1.324

\* at 10% level significante, \*\*at 5% level significante

The data of the table prove that the companies which already adapted the IFRS were less willing to hide the realized profit in the P&L when it was low, doing so, the probability of reporting the small amount of profit (SP) was significantly negative (-1.194) in their case. Furthermore, it can be stated that they did not tend to hide their large loss either. The latter statement is a consequence of the positive and high value of the coefficient of LL (2.581). It is rather specific for national accounting standard user companies to be in favor of reporting smaller amount of



profit (0.451) and avoid large losses to be reported in P&L, which is possible because of following the accrual-based accounting.

**Accounting methods and value relevance**

The first value relevance test is an OLS regression of share price on book value per share and net profit per share. Its model was followed by *Hung and Subramanyam* (2007) researches (5).

$$P_{i,t} = a_0 + a_1 BVPS_{i,t} + a_2 NPPS_{i,t} + e_{i,t} \tag{5}$$

Where:

- $P_{i,t}$  = Total market value of equity deflated by number of shares outstanding,
- $BVPS_{i,t}$  = Total book value of equity deflated by number of shares outstanding,
- $NPPS_{i,t}$  = Total net profit deflated by number of shares outstanding.

The second value relevance test is an OLS regression of profits on stock returns. Its model was employed by *Lang et al.* (2005) researches (6).

$$NPP_{i,t} = a_0 + a_1 AR_{i,t} + e_{i,t} \tag{6}$$

Where:

- $NPP_{i,t}$  = Net profit divided by beginning of year share price,
- $AR_{i,t}$  = Annual stock return at year-end.

The third value relevance test measured the association between IFRS-based book value and net profit figures, then stock returns. Its OLS regression model was used by *Gassen and Sellhorn* (2006) researches (7).

$$AR_{i,t} = a_0 + a_1 BVPS_{i,t} + a_2 BVCHA_{i,t} + a_3 NPPS_{i,t} + a_4 NPCHA_{i,t} + e_{i,t} \tag{7}$$

Where:

- $BVCHA_{i,t}$  = Variable indicating the change in firm book value following the transition to IFRS,
- $NPCHA_{i,t}$  = Variable indicating the change in firm net profits following the transition to IFRS.

The results of value relevance models are summarized in *Table 4*.

**Table 4**

**Accounting methods and value relevance**

Denomination	Coefficients	
	National GAAP followed enterprises	IFRS adopter enterprises
NPPS	2.041**	3.025**
BVPS	0.547**	1.354**
AR	2841.145**	3694.124*
BVCHA	0.1941**	0.2941*
NPCHA	0.0182**	1.3541
R <sup>2</sup>	0.689	0.799

*\*Statistical significance at 10% level; \*\*Statistical significance at 1% level.*

My  $H_0$  assumption, namely that the information system of companies which adapted the IFRS shows a higher value relevance than other national accounting standard user companies, is proven by the data of table.

The first test of value relevance gave a result for earnings after tax/share (EPS) coefficient (3.025) and for book value of equity/share (1.354) which is significantly (at 1%) positive and higher at IFRS applier companies than at others. These companies had also more prosperous, higher correlation coefficient of financial indexes ( $R^2 = 0.799$ ).

The second test of value relevance gave similar results because the coefficient of return on equity is also significantly (at 10%) positive and higher (3694.124) at companies which already have adapted the IFRS.

The coefficient of book value change (1.3541) resulted significantly more positive at the IFRS user companies according to the third test of value relevance. These results obviously prove that the companies which adapted IFRS have an orientation towards a reporting policy based on stronger reliability and more realistic/proper evaluation. However, the index presenting the change of Net Profit (NPCHA) was also positive but not significantly at these companies (1.3541).

## **CONCLUSIONS**

My study scrutinized the consequences of the IFRS adoption. The practical results showed an unpleasant picture regarding solvency and profitability at the examined companies.

My analyses have proven that the internal efficiency measured by accounting indicators of the concerned companies depended on their financial situation, their capitalization also after IFRS adaptation. As stated before, the IFRS adaptation had an influence on decreasing income of leaders/managers too.

In my previous assumptions I have already supposed that the adoption of the IFRS can cause a change in the internal evaluation methods of the accounting indicators regarding the concerned companies. In fact, these changes are correlating with the impact on management fluctuation and cut-back of reported profitability.

According to the previously quoted studies and researches, the reported accounting results after IFRS adaptation are no more flexibly changeable and as a consequence of cost-benefit accounting, they are transparent too. Being so, the IFRS are becoming one of the most efficient tools for internal performance measurement and evaluation.

I have examined the practical realization of the assumptions supposed, through accounting data of national companies (in the sample) and I found that – except for some case – the results were in correlation with my previous statements. Finally, the value relevance of internal accounting information system was much higher in the years after the IFRS adaptation than before.

As a consequence of the IFRS adaptation the policy and requirements became gradually more transparent and bright, so as became the application of the standards and the implementation process more user friendly.

The author can advise for international management researchers to employ these methods and measure their effects on practical management functions.

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## METHODOLOGICAL AND CONCEPTUAL DIFFICULTIES OF ANALYSING THE WORKING POOR POPULATION IN EUROPE

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### ABSTRACT

*The situation of the working poor received very little attention in Europe until the late '90s, and very few researchers or governmental organizations considered this issue to be of importance. The existence of the group of people who are working, but remain poor, gained a more prominent place in the European debate after 2000, when the European Union adopted the Lisbon Strategy with a focus on employment, economic, and social policies. A new indicator, the in-work poverty risk has been added to the Laeken indicators in 2003. The European Commission defined in-work poverty as those individuals, who are employed for at least half of the year and have an equalized household income below 60% of the national median income. Since its introduction, this indicator has been amply analyzed and criticized. In this paper our objective is to assess the conceptual and methodological questions and difficulties we faced even at the very beginning of the analysis of the working poor. This concerns conceptual formulation of the notion of the working poor, the whole debate on definitions of worker and poverty used in different analysis, the conflict of combining two levels of analysis, household and individual measures, the assumption of sharing within the household, possibilities of individualizing incomes while looking for statistical data support, weaknesses of the EU-SILC 2007 database concerning the individualized working poverty measure, etc.*

Keywords: working poor, poverty, inequality

### INTRODUCTION

The concept of working poor is often discussed by researchers as it seems that having an employment today is not an escape from poverty. Although all researchers agree that the working poor are persons who are working but who are poor, the statistical implementation of the notion tends to alter a lot. We can understand working poor as poor persons at work, or workers who are poor.

The European Commission emphasised the need for a common indicator which can detect the working poor population. Since the introduction of the European Employment Strategy in 1997 and the launch of the Lisbon strategy in 2000, working poverty has gained a more prominent place in the European debate. In the framework of the European process towards social inclusion and social protection and the European Employment Strategy, the European Union adopted a new social indicator in 2003, the “in work at risk of poverty rate”. This indicator has been amply analysed and criticized ever since (Lelièvre et al., 2004; Ponthieux, 2007; Cazenave, 2006).

In the present analysis, we sum up the conceptual and methodological problems and questions of the working poor population, we show our examples on Visegrád countries (CZ, HU, PL, SK) and the Benelux states (BE, NL, LU) as these two groups of states share a common history but a rather different path in European integration and economic development. We use the European definition of working poor but with fully individualised income measurement using the 2007 wave of the European Statistics on Income and Living Conditions (EU SILC).

Our objective is to draw the attention to the working poor population, to develop the way we can grasp this problem with finding the common characteristics of this group of people in Europe. We would like to know what are the differences within the EU, to what extent the situation is different in Western Europe and Eastern Europe, and what are the causes of being working poor.

### CONCEPTS AND DEFINITIONS

The existing literature on working poverty is extremely heterogeneous in methodological terms. The rate of working poor is very sensitive to some basic assumptions made at the beginning of any analysis: the definition of worker, the definition of poor, the reference population, income and the unit of analysis.

Working poor are either understood as poor persons at work, or workers who are poor. *Table 1* shows the extent of working poor based on this two definitions.

**Table 1**

#### Percentage of working poor within the total population based on two definitions

	Poor persons at work	Workers who are poor
CZ	2.41	11.00
HU	6.53	20.61
PL	12.77	27.80
SK	8.62	29.75
<b>V4</b>	<b>10.12</b>	<b>23.97</b>
BE	6.49	14.63
NL	17.78	17.80
LU	8.39	20.04
<b>Benelux</b>	<b>13.27</b>	<b>16.62</b>

Most of the approaches neglect that the working poor are at the crossroads of a conceptual problem as employment is an individual status (since individuals who are employed not households) whereas poverty is commonly defined at the level of the household. Consequently, working poor combines two levels of analysis, the individual employment status and the household-based poverty measurement. This is the case in the European approach as well, where being poor is defined based on an equivalised household income. As an equivalence scale, the so called “OECD-

modified equivalence scale” is used, which assigns a value of 1 to the household head, 0.5 to each additional adult member and 0.3 to each child. This method bases on assumptions about economies of scale in consumption as well as on judgments about the needs of each individuals in the household such as children or the elderly (OECD, 2008). However, this causes problems in the interpretation, when we would like to investigate the link between work and poverty.

New approaches suggest, that taking the household as the income recipient unit leads to a false evaluation of poverty (Wooley and Marchal, 1994; Kabeer, 1994; Meulders et al., 2009; Ponthieux, 2009). Table 2 shows the results in the extent of working poor if choosing an individual or a household based income measurement. The methodology of the individual income measurement can be found in the chapter: Methodological notes.

**Table 2**

**The extent of working poor within the total population based on individual and household income measurement, %**

	<b>Individual</b>	<b>Household</b>
CZ	1	3
HU	3	6
PL	6	12
SK	4	5
<b>V4</b>	<b>5</b>	<b>9</b>
BE	3	4
NL	5	5
LU	5	9
<b>Benelux</b>	<b>4</b>	<b>5</b>

Source: *own calculation* (individual), *Eurofound*, 2010 (household)

The European "at risk of poverty rate" using the equivalence scale implies the clear assumption that the incomes are fully pooled and shared within the household members. However, an equal division of income within the household seems an abstract notion rather than a real life fact. Studies have evaluated the degree of income pooling within households, Sen (1990), among others also drew a disproof conclusion by introducing the notion of “perceived contribution response” which suggests that women receive less from household resources because their contributions to household income are valued less than those of men. We argue that individual measures are more appropriate in a society where the divorce rates grow continuously since the 1960s (González and Viitanen, 2006). We would like to see how each individual would perform if he/she could only rely on his/her own income.

Consequently, the income pooling and sharing assumption particularly hinders the correct assessment of women’s poverty situation. Women often live with men whose income lifts them up above the poverty threshold, while men often live with women who has no income at all i.e. not economically active (Ponthieux, 2009). This

is the reason why women are underrepresented among the working poor in EU studies (e.g. *Eurofound*, 2010). Poverty of the working poor is not always the result of their individual activity status (the same individual activity may or may not result in poverty, depending on the family size and the labour market status of other members of the household). On the other hand, unfavourable situations of activity leading to low earnings no longer fall within the category if this income is counterbalanced by the household, and pass the poverty threshold. As a result, many poor worker is not considered poor because other household members lifts the household above the poverty threshold. This way, the household acts as a “fig-leaf” of poverty. In the same time, some household members are shown as poor, because they have other dependent household members they have to share their income with, but this income is not enough to escape poverty. In this case, the “earner” of the family uses the same amount of household resources as the dependent or inactive household members? As a consequence, based on individual income measurement women are more exposed to working poverty than men. In contrary, based on household measurement, men are shown as more subjected to this problem. *Table 3* shows the extent of working poor by gender within the total population based on individual and household income measurement.

**Table 3**

**The extent of working poor by gender within the total population based on individual and household income measurement**

	Individual		Household	
	men	women	men	women
CZ	1%	2%	3%	3%
HU	4%	3%	7%	5%
PL	5%	6%	13%	10%
SK	4%	5%	5%	5%
<b>V4</b>	<b>4%</b>	<b>5%</b>	<b>10%</b>	<b>8%</b>
BE	2%	4%	4%	4%
NL	2%	8%	5%	5%
LU	2%	7%	9%	9%
<b>Benelux</b>	<b>2%</b>	<b>6%</b>	<b>5%</b>	<b>5%</b>

Source: *own calculation* (individual), *Eurofound*, 2010 (household)

In the definition of poverty, the European literature is quite solid. The majority of researchers defined being poor on the bases of a relative poverty threshold (equalised household income being under the 50% or 60% of the national median income). As an equivalence scale, the above mentioned “OECD-modified equivalence scale” is used. The American Bureau of Labour Statistics (BLS) set an absolute poverty threshold expressed in dollars. This threshold varies by the size of the family. This method is used by *Klein and Rones* (1989) and *Gardner and Herz* (1992). Australian researchers like *Robson and Rogers* (2005) use again, the European



style, relative poverty threshold, but set to 50% of the national median income level. Changing these definitions makes the result on working poor incomparable.

The definition of worker shows a much diverse picture even only in Europe. As for the French INSEE definition, worker is a person who has spent at least 6 months in the labour market in the reference year with a minimum of 1 month of employment. The European approach - what Eurostat adopted in the in-work poverty risk indicator - defines the workers as those people who are actually working at the time of survey and who has spent at least 7 months in employment during the reference year. The BLS definition of worker, namely a person who has spent at least 27 weeks in the year of reference in the labour market by working or looking for a job. Consequently, the American definition is the least strict, it does not require one day of actual employment in the reference year to be classified as a worker.

In methodological terms, the different patterns of the labour markets in Europe can have a significant effect on the working poor. For example, taking employment rate (which is alters a lot) from 53% in Poland to 76% in the Netherlands in 2007 (Eurostat website). The rising of the employment rate will result in the rising of the median income and consequently the rising of the poverty threshold, which makes more people falling below the poverty threshold. The other aspect of national and territorial inequalities of labour market, that the part-time work is much more spread in the Western Europe i.e. in Benelux States, especially in the Netherlands. The more frequent appearance of part-time work (with lower income compared to full-time work) results in more people falling under the poverty threshold. This effect also disfigures the extent of working poor in different countries. *Table 4* shows the share of full-time and part-time workers within the total population.

**Table 4**

**Percentage of full-time and part-time workers within all workers**

	<b>Full-time</b>	<b>Part-time</b>	<b>All</b>
CZ	96.90	3.10	100.00
HU	95.27	4.73	100.00
PL	90.72	9.28	100.00
SK	97.50	2.50	100.00
<b>V4</b>	<b>93.00</b>	<b>7.00</b>	<b>100.00</b>
BE	78.32	21.68	100.00
NL	62.47	37.53	100.00
LU	82.48	17.52	100.00
<b>Benelux</b>	<b>68.91</b>	<b>31.09</b>	<b>100.00</b>

Source: Based on *SILC*, 2007

The working poor analysis has difficulties which lie in the database. Unfortunately many data are unfilled or missing over the European countries, which result in incomparable results, or even the country has to be excluded from the analysis. The most important variable, the individual net incomes are missing from many

countries, which make the individual analysis hard to be done. However, there is an approach which eliminates this problem, by inflating the poverty threshold by the so called “net-gross ratio” introduced by *Ponthieux* (2010). We adopted this method while we see its advantages and disadvantages as well.

## METHODOLOGICAL NOTES

In this analysis, the working poor population is analysed in 7 EU countries, the Visegrad countries (CZ, HU, PL, SK) and the Benelux states (BE, NL, LU) using the 2007 wave of the EU-SILC. This database is an instrument aiming at collecting, timely and comparable cross-sectional and longitudinal multidimensional micro data on income, poverty, social exclusion and living conditions in EU countries. The sample size of the countries are 23059 in CZ, 22297 in HU, 42852 in PL, 14864 in SK, 15493 in BE, 25905 in NL and 10419 in LU. We made our calculations by applying the cross-sectional personal weights provided by Eurostat. In our analysis, the definition of worker is those individuals were employed/self-employed full-time or part-time at least through 7 months of the reference year. The definition of poor is defined as those individuals, whose individual net income is under the 60% of the same national median income.

*Meulders et al.* (2009) developed a methodology in order to analyse poverty based on the resources of each individual, whatever the characteristics of the household in which he/she lives. This approach allows overcoming the three main difficulties that are raised by the European Commission’s definition of the working poor. Using an individual measure of income to determine the poverty status avoids the conceptual problem that employment is an individual state whereas the poverty risk is commonly determined through a household approach. It further allows going without an income pooling assumption and as such contributes to a more correct identification and understanding of the working poor, especially of its female population. In order to correctly design policies to reduce in work poverty, a precise identification of the working poor is essential.

We individualise all income sources received by the household and add these incomes to real individual incomes in order to obtain total individual incomes. With this approach, we would like to show how each individual would perform, if he/she could rely only on his/her own income. We calculate total income from EU-SILC personal and household data. Concerning total income, there are variables which are provided by the database individually (employee cash or near cash income, cash benefits or losses from self-employment, unemployment, old-age, survivors’, sickness and disability benefits, as well as education-related allowances) and there are household-based variables (family/children related allowances, other social exclusion benefits, housing allowances, cash transfers received and income from capital investments). After individualising household income, we computed the net revenue of each individual, and calculated the 60% of the median of these incomes by country, which serve as the poverty threshold.

There are countries where only the gross income variables are available (CZ, HU, SK, NL) for these countries, we applied an inflation rate on the poverty thresholds.

The inflation rates (Net-gross ratio: NGR) have been developed by *Ponthieux* (2010), by dividing disposable (net) household incomes with the gross household incomes. Ponthieux computed the NGR rate as a ratio of the weighted sum of total disposable household income (variable HY020) to the weighted sum of total household gross income (variable HY010), negative incomes are expressed as zero. The ratio can be applied in our analysis because it includes the same variables we used to calculate total income, only company car (PY021) and income received by people aged under 16 (HY110) is additional, and the missing variables are non-cash employee income (PY020) and interest repayments on mortgage (HY100). The poverty threshold inflation rates are as follows: CZ: 0.938; HU: 0.893; SK: 0.923; NL: 0.844. For the rest of the countries an inflation rate of 1.00 has been applied.

In result, the poverty thresholds have been set to 2,427 € in CZ, 1,663 € in HU, 1,659 € in PL, 1,698 € in SK, 9,491 € in BE, 7,521 € in NL, 14,306 € in LU. Those individuals who dispose a yearly income lower than the poverty threshold are designated 'poor' (or rather at-risk of poverty), and those who dispose higher income are 'not poor'. To sum up, the working poor population has to match three criteria, to be poor (dispose lower income than the 60% of the national median), to be a worker (full-time or par-time at least 7 months in the reference year) and to be 15-64 years old (in order to exclude pupils, young earners and old pensioners from the analysis).

We always calculated V4 and Benelux total values by weighting the country values by the size of the total population in 2006 available at Eurostat.

The advantage of applying NGR ratio is that to include all countries into our analysis is rather simple. The disadvantage lying in applying the NGR ratio is on one hand that we only judge the individual net value by the household values which might reduce the comparability of the results. On the other hand, we have to take into account when we read the results, that applying a common NGR neglects that those who earn less, pay less taxes, and those who earn more, pay more (women are more likely to earn less). This method actually increases the existing net income differences.

## CONCLUSION

In 2003, the European Union adopted a new indicator, the "in work at risk of poverty rate". This indicator is often accepted and used as a kind of immutable object regardless of the fact that it is based on assumptions that are only rarely discussed and questioned although they have particularly strong consequences for the calculation of the in work poverty risk and for the design of policies to combat in work poverty. The purpose of this paper was to show the volatility in the measure of the proportions of working poor with respect to different methodological choices has to be made at the beginning of any analysis. By showing this volatility, we aimed at tackling some of these generally unquestioned assumptions.

We found that different understanding of working poor can have significant effect on the result, we showed how the extent of working poor change if we take the "poor persons at work" or the "workers who are poor" population.

The working poor are at the crossroads of two levels of analysis. Using an individual measure of income to determine the poverty risk avoids the conceptual

problem that employment is an individual state whereas the poverty risk is commonly determined through a household approach. It further allows going without an income pooling assumption and as such contributes to a more correct identification and understanding of the working poor, especially of its female population.

The European household based definition of the poverty risk actually measures the proportions of workers who are poor because they have too many dependents. On the contrary, when the poverty risk is computed on the basis of individual income, what is measured is the proportion of workers who, because of their employment conditions, earn a wage that is insufficient to stay out from poverty. The difference between the two measures illustrates the impact of household structure. When equivalent household disposable income is replaced by individual net income we get a more precise idea of the protective role played by employment against the risk of poverty.

We found, that different labour market characteristics have influence in the extent of working poverty, i.e. the employment rate and the share of part-time workers have shows huge alterations within the EU. At last but not least, the missing data of EU-SILC database highly damages the reliability of the results.

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## THE SOLAR INDUSTRY BOOM IN GERMANY

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### **ABSTRACT**

*In the last two years, significant photovoltaic installations have been built in some European countries, especially in Germany and Spain. The number and capacity of both private rooftop and free field solar power plants are expanding quickly. In Germany the new installed capacity has doubled from the year 2009 to 2010 and boasts a current capacity of 17.000-18.000 MW electric power (effectively this is the capacity of 3-4 new nuclear power stations). In spite of the fact that solar power is the most environmental friendly energy source; some other countries like Belgium, Holland, and the Czech Republic have revised their subsidy strategies for the industry. This study evaluates the situation in Germany, running a quantitative analysis on installed capacity over the last five years. As technological standards get more conventional, the module prices fall significantly as does the extreme oversupply. However, the guaranteed subsidy schemes are not downgrading proportionally to module prices, this has led to the overheated market situation we are facing in Germany. Furthermore, this study shows the cost for households. The key questions are rising prices for electricity that all households face and the political discussion behind the new industrial revolution. This latter concerns the fact that the biggest supplier of these technologies is no longer Germany itself, but the Far East; the subsidy is flowing out of the country. Several approaches such as PESTLE analysis are applied within the analytical framework. The recommended output will be critically appraised based also on a literature review to identify the potential limitations and obstacles to further growth in the sector.*

Keywords: Sustainable economy, photovoltaic, solar economy, sustainable growth, feed-in tariffs, solar industry, Renewable Energy

### **INTRODUCTION**

Germany currently is the most attractive place for the solar industry regarding the supportive schemes and legal background (Mendonca, 2007). The German Renewable Energy Sources Act (EEG) came into effect in 2000 and has been adapted by many countries around the world (Lipp, 2007). However, the German solar photovoltaic (PV) development continues to drive the global PV industry and shows little evidence of slowing down going forward. Largely driven by favorable feed-in tariff (FIT), more than 3.8 GW were installed in 2009 and another 4.2 GW are forecasted to be installed in 2010. Initiated by strong regulatory support, the industry is transitioning into a new phase with the scaling entrance of well-financed industrial power players, utilities, independent power producers and investors (Delina, 2010).

Originating in Germany, a wave of development activity is moving through southern Europe and into central and eastern Europe. Approximately 30% of

Europe's PV capacity was installed outside of Germany in 2009, signaling broader development opportunities. Key to the expansion is PV technology's unique and flexible siting applications, which allow for a range of rooftop and large-scale, ground-based PV installation opportunities (BSW Solar, 2011).

In last year's, cost declines improve position against other renewable sources. PV system costs are dropping dramatically and are attracting greater interest as PV approaches costs comparable to other peak-generating technologies. The cost improvement trend results largely from a recent oversupply in the global PV module market, technology and manufacturing improvements, and improved economies of scale. In the long term, these trends underlie the reduction in government incentives. These incentives have been central to getting the German PV sector off the ground, but are now evolving in their designs to shape both the size and content of the market going forward.

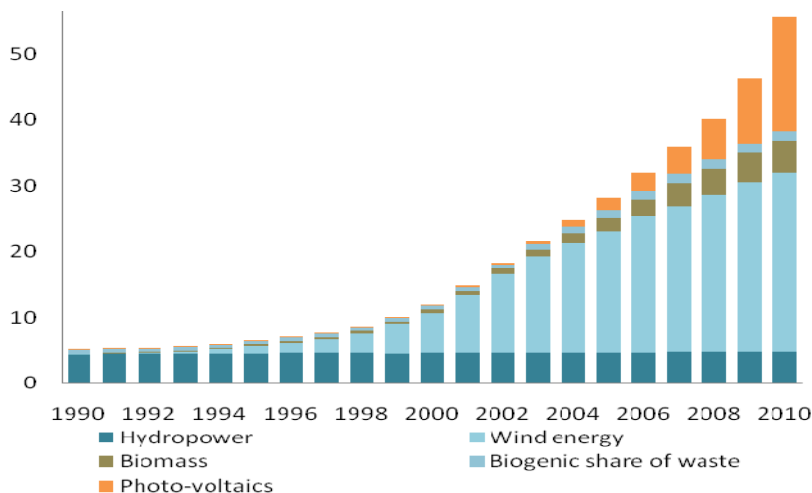
## MATERIALS AND METHODS

### Installed capacity

During the last 10 years the installed renewable capacity is nearly five times as much as it has been in 2000. In absolute numbers, wind has grown most dynamically with an addition of 21 GW (Hoffmann, 2006). In relative terms it was solar, which was expanding most, with 200 times more GW installed than 10 years ago. Looking at actual production it is wind and biomass which report the largest growth, but concentrating on large scale units. Power generation from both sources has increased by 29 and 26 GWh respectively. Production increase from solar panels stayed with 12 GWh a little bit behind, despite the enormous capacity growth by 17 GW (Figure 1).

Figure 1

Installed renewable energy capacities in Germany in GW between 1990 and 2010



In December 2009 and June 2010 alone PV reported an increase by 1.5 and 2 GW, jumps which were triggered by sharp reductions in solar feed in tariffs in the German renewable energy support scheme. Currently the tariff system grants per kilowatt-hour produced between 25 and 33 Euro-cents. For this year a further reduction will become effective on 1st of July.

### **High technology production and innovation**

Within an extremely short period of time, largely automated factories have sprung up which manufacture thin-film modules in an industrial process. This has allowed the costs per Watt of solar energy capacity to be significantly reduced, which in turn has noticeably expanded the fields of application and the markets for solar technology. As is the case with silicon technology, the German PV manufacturing industry is excellently positioned in the thin-film field and plays an active role in shaping the world market. The photovoltaic industry resembles the chip manufacturing industry in that prices are heavily dependent on production capacities. If quantities are doubled, module prices sink by a good 20%. Across Germany, the cost of solar modules has dropped on average by over 40% since 2006. Fierce competition to increase production capacities and lower prices is fuelled even further by Asian competitors. Cheap loans from the state-owned bank, lower social standards and wages and an artificially undervalued currency allow Chinese manufacturers to offer their goods at markedly lower prices. However, manufacturers producing in Germany are countering this by further streamlining production, driving forward technological development and developing brand identities (*Renewableinsight*, 2010).

### **Increasing solar power production**

The volatile cost of fossil fuel and peak power generation over the last decade has brightened the prospects for renewable, with zero fuel costs. Additionally, the predictability of future power prices for solar PV gives PV an advantage over natural gas, with its highly volatile prices. EU carbon policies, looming on the horizon in 2013, threaten to increase fossil fuel energy costs further and pressure utilities to expand their renewable generation capacities. In Germany, a 1% share of overall power generation is expected to be exceeded in 2009 (*Wenham*, 2010). The growth potential of photovoltaic has often been strongly underestimated up to now, as this supposedly expensive technology has seen cost reductions in recent years at a rate that nobody expected. Solar power can thus be generated for around 10 ct/kWh at locations with lots of sunshine, and this figure is falling all the time (*Archer*, 2001). This means that photovoltaics are at the threshold of major market penetration, and the sector has shown in the last ten years that it can deliver high growth rates (*Figure 2*). For example, the European Photovoltaic Industry Association's scenarios assume that it will be possible to install photovoltaic capacity of more than one hundred GW in Europe alone by as early as 2020 (*Figure 3*).

The IEA's expectations are admittedly significantly lower, with a worldwide installed capacity of around 130 GW, but it should be noted that this is based on very conservative development as regards power generation costs; these costs are an important factor in determining the rate of market penetration and, based on current trends, these assumptions can already be regarded as outdated (*Goetzberger*, 2005).



Nonetheless, the IEA scenario also implies that photovoltaics will be able to meet around 10% of the world increase in power consumption before 2030 (Arber, 2001).

Figure 3

The renewable power production by technologies between 1990 and 2010

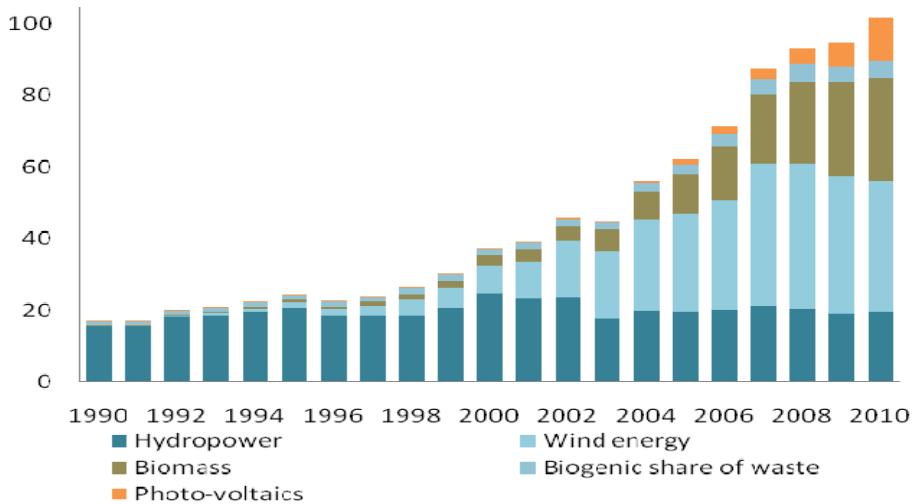
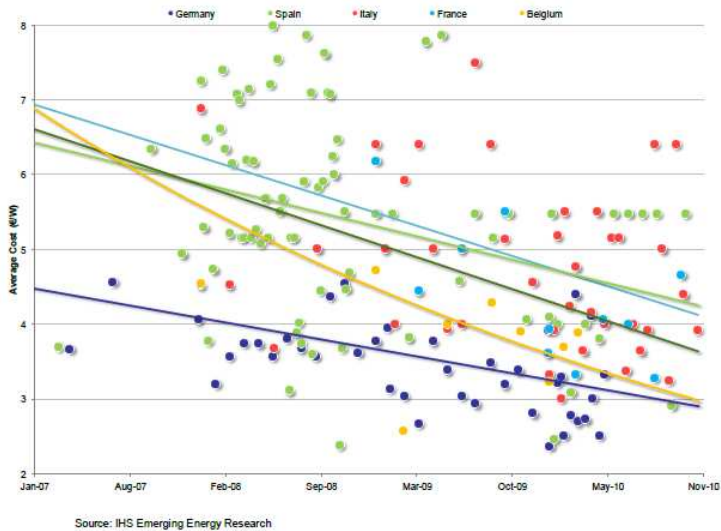


Figure 3

Average cost development of PV installations in some of the major European countries between 2007 and 2010



Source: IHS Emerging Energy Research

### Working labor

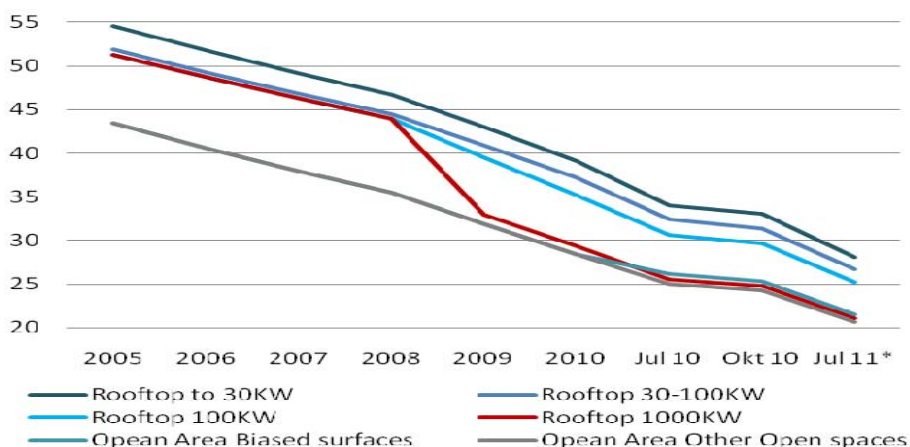
More than 83.000 employees are working in the solar economy, prognosis 2020: 100.000, mostly skilled labor. The industry has made 10 Billion EUR turnover in 2010, 75% export (Lebra et al., 2008). The potential has often been strongly underestimated up to now, high investments taken place in the industry and generates new jobs in the recent years at a rate that nobody expected (Mendonca, 2007). In detail numerous new factories for cells and modules; the solar manufacturing industry represents an important sector of the economy, particularly in the economically underdeveloped regions of East Germany. German suppliers, who are especially densely located in the classic economic regions of Western and Southern Germany, primarily operate in materials management, factory equipment, mechanical engineering and the services sector.

### Feed-in-Tariffs

As of January 2010, FITs were reduced by 9% to 11%, depending on system size, to the current rates of €0.28/kWh for ground-based systems, €0.29/kWh for large rooftop, €0.35/kWh for medium rooftop, and €0.37/kWh for small rooftop. Taking into account these annually prescribed tariff cuts, 2010 tariff rates will be 26% lower than 2009 rates. Moving forward, tariff rates will be subject to a 10% annual digression schedule. Germany targets 18% of gross electricity production to come from renewable energy systems (RES) by 2020, without setting targets for specific technologies (Figure 4). The resulting flexibility for policymakers to adjust incentives clouds the visibility of policy developments. However, the government has set a target of 3 GW of annual additions, ideally not exceeding 3.5 GW (Papineau, 2006).

Figure 4

The feed in tariff development of PV installations in Germany between 2005 and 2011 divided by type of installation



## RESULT AND DISCUSSION

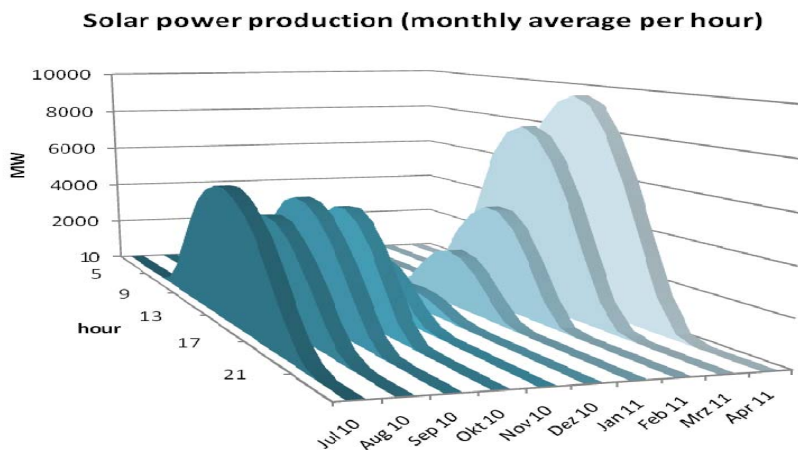
From the society aspect – based on surveys conducted by Emnid, Forsa and Allensbach - 98% of Germans are in favor of solar energy being more widely used. Around 75% of German citizens would themselves like to live in a solar house – over a million of them have already fulfilled this dream. An opinion poll carried out by Emnid suggests that 71% of all Germans would invest in renewable energy. PV is the preferred choice to ease the burden on the environment, and no other energy source enjoys such immense popularity amongst the population. This fact drives to the finding that rise of the solar industry is well grounded and fully supported by the society.

The second result is that the power market is highly influence by the photovoltaic power production. There is summer days where 25-30% of the overall electricity usage in Germany coming from photovoltaics. Furthermore, photovoltaic supporting the peak hours, and has no effect on nuclear power as this are supplementary strategies (as nuclear delivers base-load power, the PV is supporting at daytime) (Goetzberger, 1997) Therefore it is common for solar and the power market, that the demand curve hits the supply curve more and more in the flat part of the supply curve.

The power generation from solar panels has been highly influenced also by the capacity growths in the recent years. Currently, the power generation ranges between 1500 MW and 12000 MW in hour 12. In light of further additional capacity, the volatility in PV power generation will raise further and straight the previously described effect on the mid-term (Figure 5).

Figure 5

### The power produced by the current PV installations between mid of 2010 and mid of 2011



## CONCLUSIONS

Unlike other renewable technologies, photovoltaic has the advantage of scalability, a broad range of potential project sizes and sittings possible. Solar energy generation, which can be down from utility-scale, ground-based, multi-megawatt projects to small, residential rooftop projects, attracts market participants ranging from multinational utilities to commercial and industrial players to individuals. So this socio effect is from my point of view the most important finding to give the answer for the success of photovoltaic. Not only does it result in a larger net pool of potential investors, small rooftop systems also benefit from shorter permitting and construction times. It is important to state, that Germany was the first country in Europe realized the importance and potentials of photovoltaics. The systematic governmental subsidy scheme was also supporting the PV development. But, with the technological improvements, regulators are cutting feed-in-tariffs - not only in Germany –, but across Europe, putting a greater emphasis on cost-competitiveness and stress to more technological and manufacturing improvements.

The future growth of the PV industry in Germany is depended on political actions. In order to stimulate the markets either in grid-connected systems by feed-in tariff programs as well as for off-grid rural developing country applications by long-term financing schemes.

A technology roadmap is already defined by different customer needs with best-adopted technologies and competitiveness with foreign competitor, mainly from China. As the recent market development shows that the German PV industry can deliver PV systems with network parity efficiency, but without opening new product ideas and additional market segments, cannot obtain against other producers. For further development of the photovoltaic market is the followings are needed: decreasing costs by increasing productivity for all technologies as well.

The role of photovoltaics in the future energy supply chain is given. Due to a fast growing market driven by increasing acceptance of solar power generation, a substantial PV business and creation of employment is expected for the future. Germany with its photovoltaic development can provide a possible solution for nowadays global issues, such as a global energy justice by providing environmentally friendly power to billions of people, who otherwise will lack energy solutions severely (*Hoffmann, 2006*).

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## THE ROLE OF SYSTEM DYNAMICS MODELLING IN SUSTAINABILITY PLANNING

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### **ABSTRACT**

*The energy market architecture has a great impact on present and future economics and society. The sustainability of our whole global civilization depends on the transition into the post-fossil epoch. System dynamic modelling provides strong and effective tools to evaluate and communicate the future strategic possibilities of whole industries and national and global markets. Two main subsidy politics exist to speed up the diffusion of renewable energy technologies: Feed-in-Tariffs and Green Certificate Markets. Three system dynamic models of the Hungarian renewable electricity sector were developed: baseline system, Feed-in-Tariff, and Green Certificates. These models reveal the dynamics and efficiency of the different subsidy-systems. The focus of the model is the investor, whose decisions depend on the risks and the costs of the technologies. It is possible to develop future scenarios in order to investigate the renewable energy-mix over the short- and long-term and to compare the overall costs. The lack of historical data prohibits the verification of these models, because in Hungary the Feed-in Tariff system will be altered every year and the Green Certificates were never introduced. The approach is nevertheless very useful as planning method. It makes it possible to estimate the impact of alternative politics on the development of whole systems; thus it can be the basic methodology in all kinds of sustainability planning on all levels.*

Keywords: system dynamic modelling, sustainability planning, energy policy, renewable electricity system

### **INTRODUCTION**

The energy market architecture has a great impact on present and future economics and society. The sustainability of our whole global civilization depends on the transition into the post-fossil epoch. Everybody knows this, everybody speaks about the necessity of the transition, but nobody is able to show the exact steps into this brave new world of renewable and sustainable energy system. We know, or we pretend to know what is coming, but we have no idea about the way, about the means and about the necessary measures. There is one factor, which is quite clear: the costs of fossil energy are rising and in the near future, not the costs, but the availability will be the real problem. The first question to the energy supplier countries will not be the price of oil or gas, but whether they are willing to provide the necessary amounts of fossil energy carriers or not.

Hungary is a small economy in ongoing crisis and there is always a question: who will finance the transition? Who will be able to invest into the Hungarian energy system? The key target set by the European Union is 20% of Europe's total energy consumption to come from renewable sources by 2020 (RED). Hungary was able to bargain this target

and the country has to reach only 13%, but despite of this “success”, it is impossible to see the long-term policy that could lead to the fulfillment of this obligation.

The state has a controlling function in every market economy; it has the possibility and the obligation to set the rules, to make legislations, to shape the market infrastructure, and to optimize the subsidy distribution in order to reach the most effective renewable energy system. How is it possible to shape an effective market architecture, if we have no or very limited experiences, if it is very complicated to copy the systems of other countries, if we do not have a strong evaluation strategy, if we have to boost innovative technologies with the money of the tax-payer, and if we would like to eliminate corruption and rent-seeking?

System dynamic modelling is able to answer these problems. The aim of this paper is to show the strength and limitations of system dynamic modelling in shaping future energy-market-architecture.

## **THE GENERAL ASSUMPTIONS OF SYSTEM DYNAMIC MODELLING**

### **The driving forces of system dynamic modelling**

System dynamic modelling is not a methodological approach, it is a philosophy. System dynamic models deal with social and/or natural systems, they use a non-experimental method in order to gain profound knowledge about the behavior and structure of systems. The main driving force in a system dynamic model is causality (*Forrester, 1980*).

This kind of modelling differs from the econometric models, where the correlative dependencies of the various variables are in focus, and from the cross-impact analysis, which is based on probability (*Legasto and Maciariello, 1980*). We are able to model very complex social systems only if we have an intuitive image of the relationships between the various elements and we do not stay on the surface, we will not be satisfied until we can identify their structural interdependencies. This is more than statistical correlation, because it is possible that the variables correlating statistically are not connected to each other. System dynamics sets the ambitious aim to reveal the causal connections between the system elements. The intuitive image of the system is called mental model, which has to be formalized in the way that it serves a given purpose. The goal of a particular formalized model defines the system boundaries, canalizes the choosing of exogenous and endogenous variables and determines the possibility of validation and the practical and/or theoretical applications of the information collected by running various computer simulations.

### **System dynamic models as communication tools**

The computer simulations based on system dynamic models overwhelms us with a lot of data. In the focus of this kind of research is often not the connection between the real world and a simulation, but the model itself. The main interest in building system dynamic models will raise questions, such as:

- What are the driving forces of a real/hypothetical system?
- What will be the state of the world, if we introduce some measures?
- What should we do in order to reach a preferred state of the world?

The first question should be answered during converting the mental model into the computer simulation; the last question is about modifying the already developed model in order to test new assumptions.

The second question, which connects the purely theoretical curiosity with real social and political alternatives and practical problem-solving, defines the research of the internal behavior of the developed model. In the case that the model is able to generate the observed behavior of a particular system, than it is reasonable to test the effect of parameter-variation and/or variable-modifications on the model. This enables us to create links between the model and the real world. In this moment the model can be used as a communication tool in order to show the decision-makers the consequences of various measures. This is a kind of forecasting or testing the possible future outcomes of hypothetical actions.

## **THE SYSTEM DYNAMIC MODELLING PROCEDURE OF THE HUNGARIAN RENEWABLE ELECTRICITY MARKET**

### **Fixing the problem**

The design, implementation, monitoring and cautious, goal-oriented modification of the energy market architecture is a very complex task (*Siosbansi and Pfaffenberger, 2006*). A successful energy market functions well, if the society does not perceive its existence. Market reform failures, as the collapse of the Californian wholesale electricity market shows us that an energy market will be only in the case stable when the sector structure is the right one and the authorities let them run without too much interference (*Woo et al., 2003*).

In the time of transition the governments must solve a complex task: they have to elaborate anew electricity market architecture in order to send correct signals for investment in the new, often innovative and sometimes very expensive non-fossil technologies.

The main issue here is to assess the right amount and kind of regulation, so that the electricity system remains technically and economically stable, the prices remain affordable and the energy-mix is compatible with long-term sustainability requirements.

The system dynamic model of the Hungarian renewable electricity market developed by the Strategic Research Team of Pécs University is an investor focused model (*Somogyvári et al., 2010*). The private investment in the electricity sector will shape the future technology-mix, and if we would like to force the transition into the non-fossil age, we have to examine the effects of the existing and alternative Hungarian regulations on the investor's decisions.

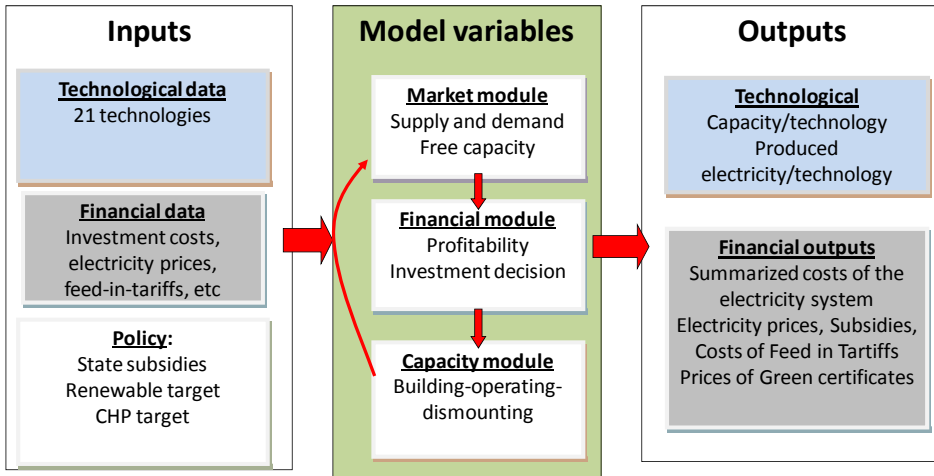
### **Shaping the model structure**

The generic structure of the Hungarian renewable electricity market model is shown in *Figure 1*. This kind of model representation sketches the main functions and practical applications of any model regardless of the modelling philosophy or methodology.



**Figure 1**

**The overall structure of the Hungarian renewable electricity market model**



The input data includes the technological features of the most common 21 electricity generation technologies. In order to get a realistic view, we modelled the whole Hungarian electricity market: the renewable technologies, the CHP technologies and the fossil and nuclear capacities as well. The financial data are technology-specified data about investment costs, estimations about the future electricity prices and the Hungarian Feed-in Tariffs in 2010, when the time-line of the model starts.

The model variables on *Figure 1* portray the endogenous variables of the model. We find three modules there: the market model includes the market mechanism which steers the behavior of the actors, the financial module imitates the decisions of the investor and the capacity module keeps track of the capacity. The delay between the investment decision and the launching of the new capacity and the in time decreasing marginal costs of investment in new technology will be taken into consideration.

The outputs of the system depend on the interest of the researchers. In this case we are interested in the performance of the regulatory frameworks. The model calculates the capacity for each technology in each year on the 40 year timeline, the amount of the generated electricity and the overall costs of the electricity system, which include the investment costs, the costs of the electricity paid by the consumer plus the investment subsidies provided by the state.

**Identifying the causal loops**

Electricity has unique features within the energy sector. The technical limitations of storing electricity, the necessity of keeping the same frequency in the whole grid and the minute by minute changing demand requires an accurate scheduling of electricity generation and a long-term capacity management. Moreover our whole society is dependent of electricity, so the security of supply is an important issue. Every intervention by the regulator, every attempt to introduce new technology has

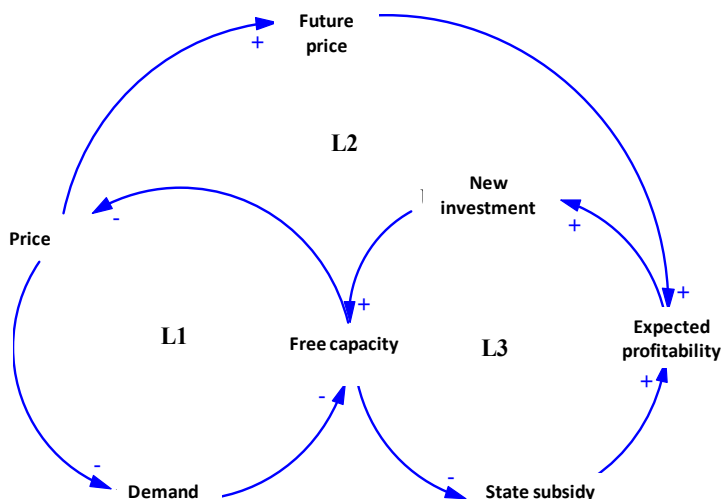
to guarantee the sufficient level of security in technical and economical sense (Arriaga and Linares, 2008).

Therefore the main driving force of our system is the free capacity. The demand and the supply is always balanced in the grid, otherwise the system collapses. In order to satisfy the peak demand the system should have always free capacity prescribed by the grid operator.

The causal links between the variables are depicted in Figure 2.

Figure 2

The basic causal loops of the Hungarian renewable electricity market model



The direction of the arrow shows the causal effect of one variable on another. The plus signalizes that if the value of the starting variable changes this will cause the change of the influenced variable in the same direction. The minus signalizes that the influence of one variable on the other will result the change in the opposite direction. The chain of the linked variables builds feedback loops. The feedback loop is the fundamental structure in a system-dynamic model.

If the free capacity in the grid increases, than the price of electricity will decrease. Decreasing electricity prices will increase the demand. (The situation in reality is not as simple, because instantaneous electricity demand does not vary in response to changes in instantaneous electricity price demand curve of electricity (Colella, 2003). We can speak about price elasticity only in the long-time horizon.) The increasing demand reduces the free capacity. This is a balancing, a so called “goal-seeking” feedback loop which stabilizes the system. The decrease of free capacity endangers the supply security. The state has the obligation to guarantee the supply security in the short and in the long term as well, so it tries to boost the investments into the sector with the help of subsidies. The subsidies signalize the investors that the profitability of the investments will improve, this leads to decisions about new investments. The new investment will decrease the free

capacity, which signalizes the state to cut the subsidies. This is although a balancing feedback-loop. The third feedback loop connects the price by the expected future price with the expected profitability and explains the connection from the increasing prices to the new investments in the form of a balancing feedback-loop. The overall causal map of the entire system is much more complicated but this simplified presentation reveals the logic and the main internal structure of the investor-focused model of the electricity market system.

In order to investigate the impact of the possible market architectures we developed three models: a basic model, a model of the Green Certificate and a model of the Feed-in-Tariff system.

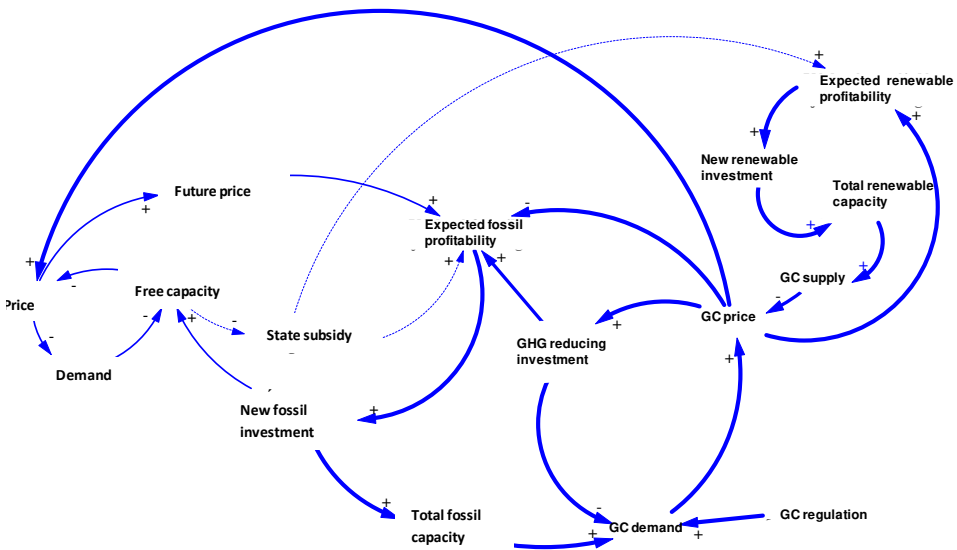
### Modelling the Green Certificate and the Feed-in-Tariff system

The Feed-in-Tariff system alters the investment decisions of the potential investors by increasing the profitability and decreasing the risk associated with the new renewable technologies. The Feed-in-Tariffs give the regulator a possibility to express his preferences toward the non-fossil technologies. The tariffs will be set by the regulator which is the Hungarian Energy Authority (Magyar Energia Hivatal). Every investment will be evaluated and the actual tariff will be elaborated on the basis of the cost-structure of the particular project. This situation is a good opportunity for the investor to rent-seeking. The investor is interested in overstating the costs in order to get more subsidy and/or higher feed-in tariffs.

The Green Certificate system as shown in *Figure 3* creates an artificial market for Green Certificates.

**Figure 3**

**The causal loops of the Green Certificate model**



Every fossil electricity producer has to buy the emission permit, the Green Certificate (GC) which represents the right to emit or discharge a specific volume of the greenhouse gases (GHG). The renewable producers emit per definitionem no GHG and they can sell the permits. This will increase the investments into the renewable technologies or the investment into GHG reducing applications in the fossil power plants. The regulator has no possibility to influence the technology mix on project basis; he sets the framework by allocating the permits at the beginning to the producer and assigning the amount of the permits to each technology.

### **Developing the formal models**

Feedback structures represented by causal loops provide an insight into the system behavior and represent a valuable tool to communicate mental models. The next step is to develop a computational model. The elements of the loops will be the essential components of the computational model, so the boundary of the model set by the problem definition predetermine the set of variables. The main problem is in this phase to determine which variable must be seen as endogenous or exogenous, how is possible to quantify the parameters and which functions describe the connections between the variables. The system dynamic approach to modelling is based mainly on difference-equation. The cause and effect view of the world will be demonstrated by flow-and-stock variables. The dynamics of the system-behavior originates from the cycles, stability, reduction and growths of the main stock variables (*Forrester, 1980*).

In our model the main stock variables represent the power plants in form of capacity. Every decision of an investor influences the future capacity of the whole grid. The investor makes a decision on a strict rational basis: the profitability and the risk of each technology will be weighed. While the profitability of each technology can be calculated, the quantification of risk is problematic. In the model we estimated the risk based on qualitative factors (diffusion, maturity, fallibility of the technology, volume of the investment, risk premium in project financing, etc.).

### **Setting the time-line for the simulation**

The purpose of the model and the time-period of the system's cycles determine the time-line. We would like to examine the effect of the various frameworks on the whole grid, therefore it is not enough to take into consideration only the economical life-cycle of an investment, which is 20-25 year. We have to expand the time-line to the "technical" life-cycle, which is 40-60 year. So we have chosen a 40-year-long period, which seems to be too long if we look at the fast changing economics, technology and society of our century, but it is too short if we take into account that a newly installed PV panel will last 60 years and that is the lifetime of the new nuclear plants as well. The investors may have short or middle-time interests, and there might be fundamental structural changes, but history of the grid teaches us that the installed capacities are likely to function up to the end of their life-time (*Freese, 2003*).

### **Calibration and validation**

The calibration of the model was completed with the data of benchmarking studies accepted by the Hungarian Energy Authority and with the Feed-in-Tariffs in 2010 in Hungary (Pylon, 2010). The current market framework in Hungary is the Feed-in-Tariff system, so the framework for the Green Certificate system was set in accordance with the 2020 targets of Hungary, determined in the Renewable Energy Directive of the European Union (RED, 2009) and in the Hungarian National Action Plan.

The validation of the models was not possible. This had some theoretical and some practical reasons. Grubb *et al.* (1993) explains that any model dealing with future situations makes use of estimates and assumptions which may or may not turn out to be valid under the changing circumstances, and will at the time of application inevitably be uncertain. The validation of a system dynamic model is always a controversial issue (Starr, 1980), because the system dynamic models often reveal the unusual behavior of a system and a validation with past statistical data does not guarantee that the model performs well in the future. The validation of our models was impossible because of the lack of data. The Hungarian Feed-in-Tariff system has been changed arbitrarily from year to year and the Green Certificate system was never introduced.

This is a serious methodological problem and therefore the whole modelling effort is open to criticism. The validation of a system dynamic model differs from the validation of an econometric model which is completed with statistical data. System dynamics deals with understanding the driving forces of the system, the validity of the model is given by the correct mapping of these driving forces into a formal model, the validation is the internal model structure per se (Barlas, 1994). If the model contains all the important variables and connections, and the structure of the model and the formulas (equations) match the available knowledge of the issue, we can speak about a “theoretical” validation. That was the case in our model. This does not exclude the demand for formal validation (Barlas, 1996), but in our case as mentioned above, this was impossible.

The lack and impossibility of validation determines the applicability of the results of our model. This is not a precise forecasting method, but an evaluation procedure in order to characterize the impact of the two market architecture on the technology mix and on the total costs. The assertions about the performance of the GC and FiT system are valid within the model boundaries, only if the decisions of the investors are fully rational. The driving forces of the models are the same in both cases, so the comparison is legitimized and can be transferred to the performance of the future renewable energy market systems in the real world.

### **Policy setting and scenarios**

The relevance and impact of different policies can be compared in the simulation phase. The synergies among different policies are captured by the feedback-loops of the model, making possible the evaluation of particular policies or policy sets (i.e. subsidizing some technologies and/or lowering the risk by removing the various

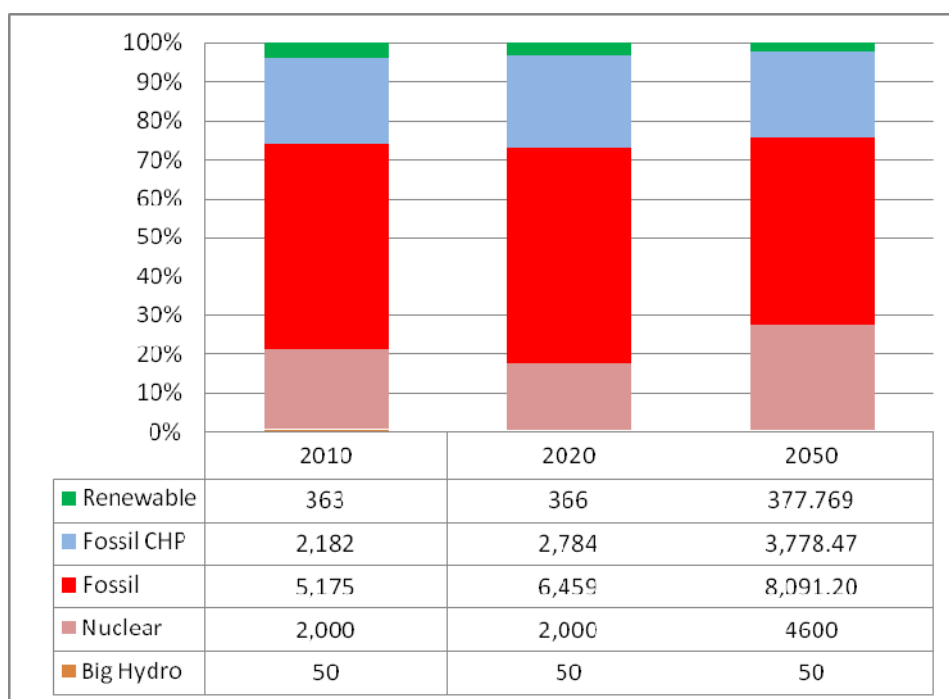
competitiveness barriers and/or increasing the Green Certificate obligation for the fossil producers, etc.).

In our model we examined the performance of the baseline, the FiT and the GC model in relationship with the total costs of the electricity system and the energy mix, and the effect of the state subsidy on reaching the 2020 target for renewable electricity generation, which was set as 15% of the total power production.

We were able to verify the necessity of the new market architecture in order to speed up the transition into the non-fossil era, because the basic model showed that the renewable technology would not grow otherwise as *Figure 4* shows.

**Figure 4**

**The technology mix of the basic model in 2010, 2020 and 2050 (MW)**



In order to compare the performance of both market systems we run a lot of simulations. We have found a lot of scenarios fulfilling the 15% target as shown in *Figure 5*.

For the sake of comparison we examined the capacity mix of these scenarios and we were able to find comparable capacity mixes with the same state subsidy policy in the Feed-in-Tariffs and in the Green Certificate electricity market architecture as shown in *Figure 6*.

Figure 5

Scenarios fulfilling the 15% target for renewable electricity production (MW)

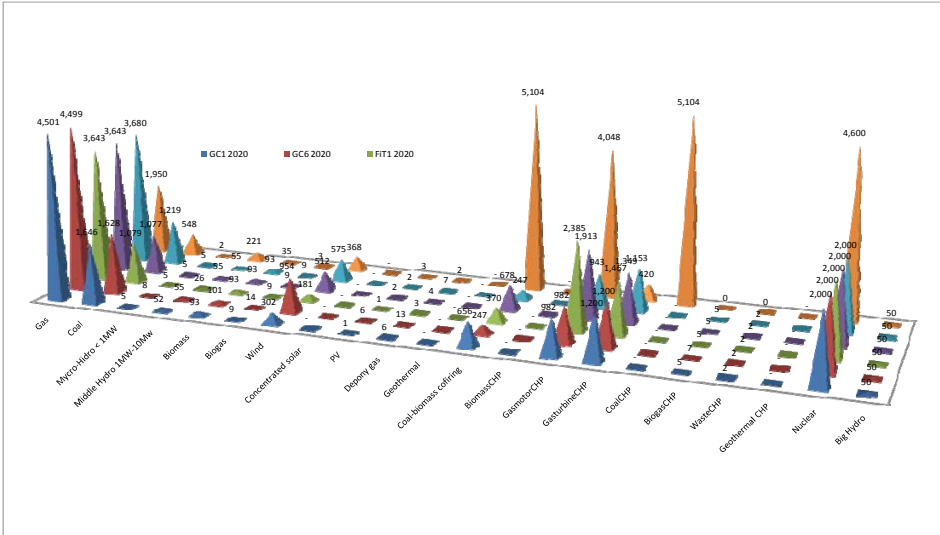
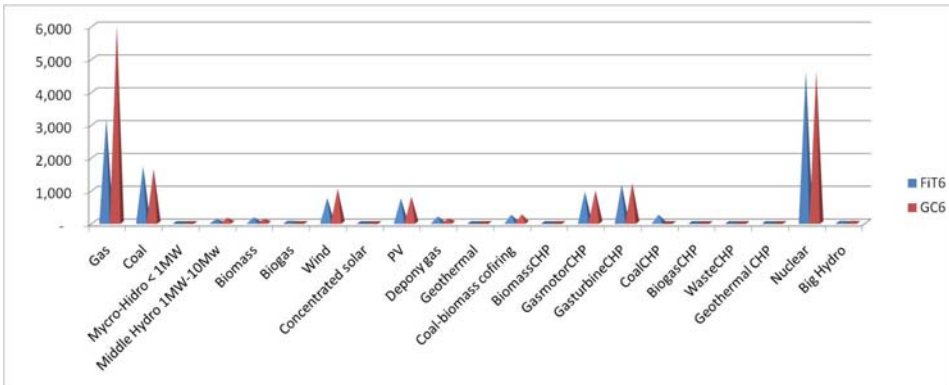


Figure 6

Scenarios with similar capacity mix under the same policy (MW)



The calculation of the total cost of the whole electricity system showed that the GC system in our model is faster and more cost-effective. The same technology mix with Feed-in-Tariff system was reached 12 year later and the cost of increasing the renewable capacity with 1 percentage per annum was 6 times more as in the GC model (Table 1).

Table 1

Financial performance of the two comparable scenarios in the FiT and CG model

	Renewable capacity %			Renewable generation GWh	Total electricity generation GWh	Total accumulated power cost MFt	Total accumulated state subsidy Million HUF	Accumulated power costs Million HUF	Total accumulated investment costs without the nuclear plant million HUF	Total annual cost of increasing the renewable power production with 1 percentage point
<b>GC6</b>										
2010	4	22	4	1 576	36 816	474 357	0	474 357		
2020	12	19	18	5 359	41 981	4 254 310	954 316	3 299 994		343 690
2043	15	13	13	10 463	72 442	24 382 156	12 649 939	11 732 217	1 839 235	
<b>FiT6</b>										
2010	4	22	4	1 576	36 816	474 357	0	474 357		
2020	8	21	7	2 688	37 591	4 086 643	672 969	3 413 675		
2050	14	17	16	10 094	65 358	27 185 206	11 568 991	15 616 215	3 942 878	2 265 434

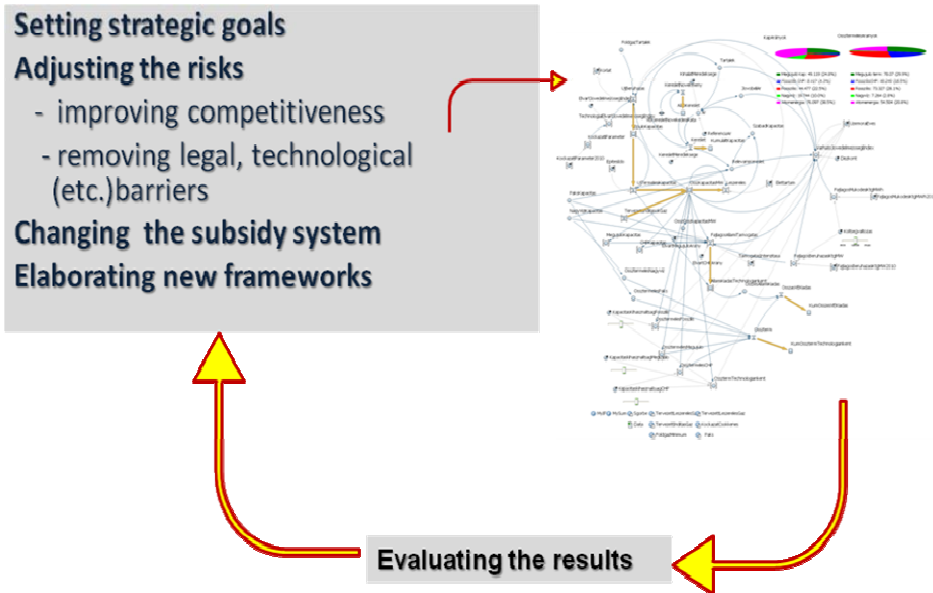
THE ROLE OF SYSTEM DYNAMIC MODELLING IN SUSTAINABILITY PLANNING

The presentation of the modelling procedure shows that system dynamic modelling is an interesting alternative to the stochastic-econometric models in energy-economics. Moreover, the advantages of such models are revealed in the context of sustainability planning. We do not have really sustainable energy system and energy-market architecture based on renewable energy, so we have to create it. The pure statistical and/or probabilistic approach will always fight in this situation with the problem of missing parameters, non-quantifiable variables, with the unusual behavior of dynamic processes, with the impossibility of forecasting the future structural changes on the basis of historical sets of data. System dynamics makes possible to develop new paradigm, to create new models and to test them. The simulations carried out by computers allows us to test the combinations of alternative policies and this can lead to the redefining the model boundaries. In the case of our model this may lead to an iterative process showed by *Figure 7*.



**Figure 7**

**System dynamic model as planning and testing tool**



The strategy of the transition can be tested step by step. The simulations with the current models are able to handle the availability and the evolution of power generation technologies, the effect of parameter variation (changing the Feed-in-Tariffs, or the Green Certificate allocations, risk adjustment, etc.) on the behaviour of the model. The model can be extended with a life-cycle-assessment module in order to measure the environmental impact of the particular technology-mix and it can be integrated into an overall Hungarian or European energy market model.

**ACKNOWLEDGEMENTS**

I would like to thank to all of my colleagues in the Strategic Research Team of The University of Pécs who helped to develop, modify and refine the system dynamic model of the Hungarian renewable electricity market. Without the data and information provided by the Hungarian Energy Authority it would not be possible to complete the task of calibrating the model. The work was financed by the grant of the Hungarian Competition Authority.

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## MAIN ELEMENTS OF STRATEGIC COOPERATION AND ALLIANCES IN HUNGARY

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### **ABSTRACT**

*Nowadays enterprises face many economical challenges and problems. Demanding consumers, sustainability issues, and financial crises are just a few of the most important ones. Because of this, staying competitive in the market is becoming more difficult for companies. One of the solutions to this problem could be collaboration between corporations. This strategy is popular world-wide. However, Hungarian enterprises have only been implementing it since the early-mid nineties. In 1989 a political transformation took place in Hungary, and real market processes and strategies could only really develop after that. The aim of this paper is to describe the main elements of successful cooperation, mainly based on Hungarian competitiveness research. To ensure comparability, distinctions must be made regarding basic characteristics like company profile, number of employees, annual turnover, etc.*

Keywords: alliance, strategic, element, cooperation

### **INTRODUCTION**

What typical characteristics and elements are necessary for a successful cooperates in Hungary? What is the participant companies' legal form; what sector they operate in; how are their activity diversified; are they work on international level, etc.? This paper will summarize these characteristics based on a Hungarian competitiveness research that focused on SMEs.

In 1989 a political transformation was taken place in the country and many opportunities were given for companies to develop their business. On the other hand the number of multinational enterprises (MNEs) has increased and caused more intensive competition on the Hungarian market. This process is still lasting, and after the EU accession in 2004 it continued even more intensively. The Hungarian owned enterprises did not have so much business experience due to the regulated social markets until 1989. In this last twelve years Hungarian companies had to close up nearly the same level as it is in the developed countries. In consequence of this lag corporate culture and strategy is generally underdeveloped.

In developed industrial countries like USA and Western Europe strategic cooperatives has developed from 1960s as Hungarian enterprises are using it from the early-mid nineties. Traditional joint ventures (JV) were one of the first forms of cooperatives at that time, where the local partner was in a subordinate position (Tari, 2010). During the years partnership in JVs were developed and partners have more determinant role nowadays. According to the main Hungarian researchers of

strategic alliances, JVs are classified as strategic alliances or cooperatives. Therefore the main definitions accepted by us are the followings:

*Strategic alliance:* Long term cooperation, based on mutually advantages and each partner stay strategically, organizationally and legally independent. At the same time a certain degree of activity integration is realized due to the given resources (*Chikán and Czákó, 2009*).

*Integration:* At least one year long, but often medium or long term collaboration, controlled by a contract. The integrator ensures the market or production safety to the integrated party; furthermore it helps in financing or provides services (*Széles, 2004*).

These definitions are very similar and they often use it as a synonym. Scientific literature has not yet made a homogenous definition and during the years it developed and expanded according to the current business situation. It is important to emphasize as well that short term contractual agreements, fusions and acquisitions are not come within the definition of strategic alliances.

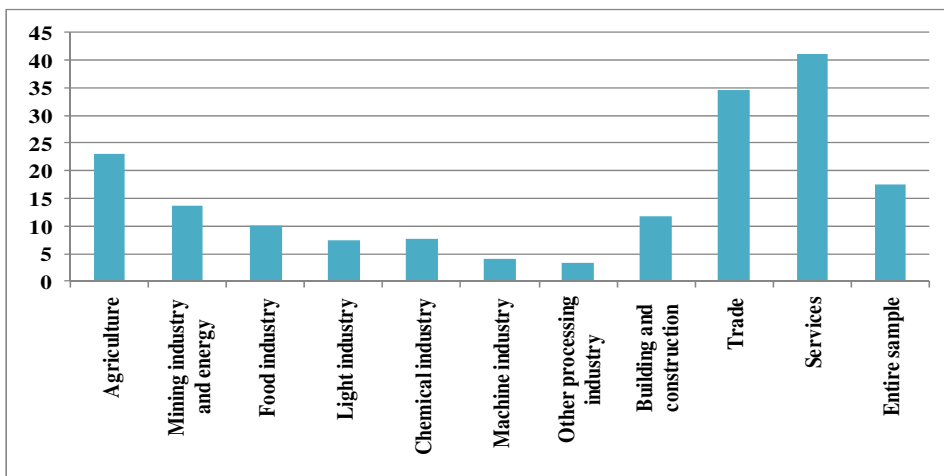
## DISCUSSION

The reasons of emerge strategic cooperatives are considerably various. Both or all parties join to gain financial or non-financial advantages like economic of scale, acquire new markets, develop and apply new technologies, etc. In Hungary this competitiveness encouraging business opportunity is still just in the elementary stage since it was used from the mid nineties (*Tari, 1998*). Therefore the “system” has problems and obstacles that need to be solved however positive effects are perceptible.

Despite that agriculture is one of the most determinant *sector* in Hungary (*Figure 1*), strategic cooperatives are less typical there compare to services or trade.

**Figure 1**

**Strategic alliances by sectors (%)**



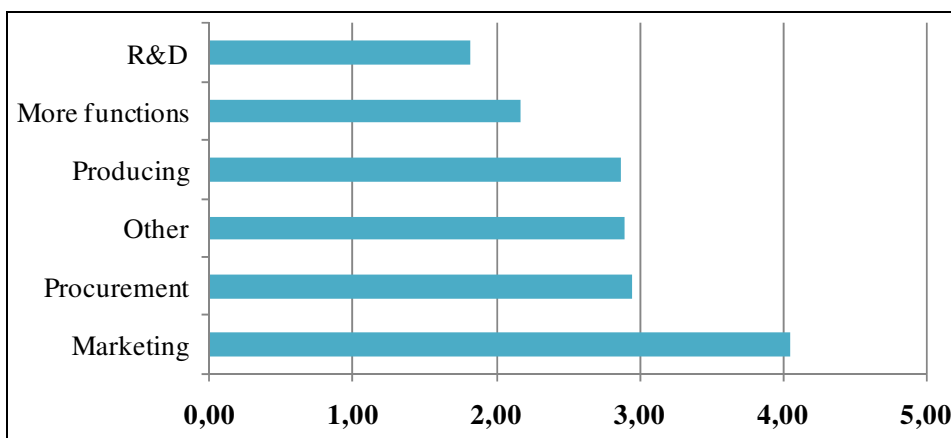
Source: *Agárdi, 2005*

During the history a pejorative meaning of traditional agricultural cooperatives in Hungary had developed. Agricultural cooperative system declined from the late 1980s due to the political and economical situation and it cannot play a proper role even nowadays. Experts are emphasizing the importance of agricultural cooperatives, but they still working ineffectively. Services in Hungary are developing powerfully and generating workplaces. Energy, telecommunication and financial service providers are the most important from the service sectors. They are mainly foreign owed enterprises just a few have Hungarian interest. As regards alliances in the trade sector food retailers are one of the determinant market participants (see case study of CBA below). Mainly procurement conditions are improving between collaborated retail companies, causing higher price gap for the retailers. Furthermore own brand products usually indicate higher revenue as well (Agárdi and Bauer, 2007). This assumes a long term relationship among domestic agricultural producers.

Cooperates between enterprises have many *functional fields* concerning the value chain (Figure 2). According to the competitiveness research, marketing is the most important field to develop cooperatives. Referring to the previous statements about food retailers, this result is not surprising. Besides activities in product manufacturing are considerably significant.

Figure 2

Field of strategic alliances concerning value chain (average 1-5)



Source: Agárdi, 2005

In my opinion applying more functional fields at the same time to cooperate could give more opportunities for business development. Tari (2010) also emphasizes this in his study as a new tendency in strategic alliances.

Shortage of capital could cause the low value of R&D, because long term technical and strategic improvements are remaining often in background at domestic owned enterprises.

It is important to distinguish alliances between *rival and non-rival companies*.

*Horizontal* strategic alliances are bound between rival enterprises. Their activities are similar, they produce replacement products and work in similar sectors. According to *Tari* (2010) rival companies' alliances have 3 different types: quasi-concentration alliances, shared-supply alliances and complementary alliances. The first two types materialized with similar resources and professional skills, whereas in complementary alliances different resources are used. The author demonstrated many practical examples however none of them were Hungarian owned enterprise, only companies attending also in Hungary. This also shows the immaturity of Hungarian strategic alliances.

Non-rival enterprises create *vertical*, *diagonal* alliances and long-term agreements (*Chikán and Czákó*, 2009). Their activities are dissimilar from each other and affect different sectors. In Hungary vertical cooperatives are typically a supplier-producer relationship while horizontal cooperatives represent more complex partnership. After all horizontal is becoming more typical for the analyzed Hungarian companies, particularly true for direct competitors (*Agárdi*, 2005).

*Legal forms* of the alliances are mainly divided into "formal" and "informal" clusters (*Table 1*).

**Table 1**

**Legal form of strategic alliances (%)**

Legal form	Characteristic	1999	2004
Informal	"Unwritten" agreement	12	20
Formal	Written agreement	75	49
	Joint venture	7	24
	Minority capital share	6	7
Altogether (%)		100	100

Source: *Chikán and Czákó*, 2009

Similarly to the developed countries written contractual agreements are the most common in Hungary. Joint ventures (JV) are becoming more popular compared to the last years. "Unwritten" agreements are most of the time used to evade competition law or indicate careful market behaviour.

Concerning *activity diversification* it is common that the more diversified the activity, the more partners are involved in the cooperation (*Agárdi and Kolos*, 2005). The *organizational structure* must be adjusted to the new business situation in order to handle the diversification and "multi-partnership". Essential problem for Hungarian enterprises is to develop an efficient functioning organization with a proper process control. Generally administrative processes are working inefficiently causing delays, additive costs and so on. It results interruptions in the partnership and this could be one of the main weakness of the Hungarian interested cooperates. This leads to the question of the intern *transaction cost* by R. H. Coase. No aim for this paper to enter into the details of transaction costs, but it is certain that both

external and internal transaction costs are necessary to consider as an element. To measure these costs are quite difficult, but technological innovations can make it possible to reduce these costs. There is no research for the real costs of the Hungarian strategic alliances but since the domestic owned enterprises have a lag, it assumes higher transaction costs than in the developed countries.

In Hungary most of the alliances are working on national level, mostly due to the geographical closeness. *Table 2* shows the main *nationalities*.

**Table 2**

**Nationality of partner enterprise**

Nationality of partners	Distribution (%)
Hungarian interest	69
EU member	22
Non-EU member, Eastern-Europe	1
Non-EU member, developed countries (USA, Canada, Japan, Switzerland)	8
Altogether	100

Source: *Buzády and Tari*, 2005

According to *Buzády and Tari* (2005) low volume of international partners shows the lack of initiation with international corporate. They also empathize that domestic partners have approximately the same market and financial situation while international partners probably have stronger position causing inequality and fear of later acquisition. I agree with it partially, however if the partners are staying strategically independent the chance for fusion or acquisition is quite low. If the criterion of independency is damaged we can call nothing but strategic alliance. *Tari* (2010) emphasizes in his research, that horizontal alliances have higher chance for elimination or fusion because of competition.

Positive *corporate performance changes* are expected by the participant partners when they join to an alliance. According to *Agárdi* (2005) in Hungary despite of the late adaptation of cooperatives, strategic positions are positively changed (*Table 3*). This could indicate further relations.

**Table 3**

**Effects of strategic alliances to strategic position**

Change	Distribution (%)
No change	16
Positive	79
Negative	5
Altogether	100

Source: *Agárdi*, 2005

At Hungarian enterprises the *joining mood* is not declining, most of the companies are willingly joining to new alliances. But considering companies have never developed any cooperate only 30 percent thought about joining and 70 percent did not plan any at all (*Agárdi and Kolos, 2005*).

### **Case study: CBA – The Hungarian trading company**

In 1992, ten Hungarian private traders are founded CBA Commercial Ltd., a food retailer chain strategic alliance. The participants associated to put a fight against the dying Hungarian food retailer market. Multinational enterprises (MNEs) began the penetration into the Hungarian markets therefore small food stores lost most of their costumers. New market demands were arise and CBA recognised the new way of commercial activity. The main goal was to increase the number of participating stores during the years, and give help for procurement and sales. In 1998 CBA purchased an 18 000 m<sup>2</sup> storage to ensure the smooth service of expanding demands. Regional centres were established in order to cover the national market and operational and management issues became more easy to handle. In 2000 and 2001 CBA corresponded with the German EDEKA Commercial Association and expanded the business to Croatia. A logistic centre was finished in 2005 in Alsónémedi and CBA became a franchise system. The joined enterprises get a uniform policy and appearance regardless of business size. During the years the number of joined stores was increased above 3300. It is still a 100% Hungarian owned strategic alliance which is a unique phenomenon in the Hungarian food retail market. The main principles of CBA are the followings:

- Strategic autonomy for partners
- Common discount system
- Common interest against individual interests
- Steady expanding
- Common invest of resources (marketing, organization, employee education, logistics)

CBA collaborates with local producers to ensure Hungarian product availability and they created a high quality, own brand called the “Hungarian Quality”.

Regardless of shop size participants shops have various types. The owners’ shops could differ in size, internal appearance, product range and opening hours. Joined stores are connected to the regional centres and they have to comply with the entire requirements and get purchase benefits in return. Stores of “CÉL” were founded in 2001. They include small size shops without the conditions to join. Thus CBA ensures different conditions (logo, marketing and assistance) for them but purchasing conditions remains favourable. More than 1700 stores are using this possibility without entry fees. CBA “Príma” is a new shop type from 2009. High quality appearance and product range are the main distinctive features besides favourable prices. In year of 2009 CBA “Cent” discount stores were established as well. The product range is the widest among CBA shop types with the most favourable prices.

The CBA’s logistic system ensures the effective supply of the partners. They use high technological quality system that can serve the next 15 year activity. There are



15 regional centres which coordinate partners and increase the number of participant shops with 5-6 per week on national level.

CBA is strengthening their domestic market position and besides from 2001 it begun the international expansion. CBA is attending in 9 countries with almost 3900 stores: Slovakia, Slovenia, Romania, Poland, Serbia-Montenegro, Lithuania, Bulgaria, Croatia and Czech Republic. They have common marketing and procurement activity that give benefits to local suppliers and defend against MNEs.

Due to this cooperation CBA became one of the biggest food retailers in Hungary. Both the joined partners and owners have mutual benefits while partners have their own independency. The competitiveness of small food stores were considerably bad especially in settlements where MNEs were attending like Tesco, Spar, and so on. CBA partners can keep their market position successfully and activate the local economy helping the localization process.

## **CONCLUSION**

From the first appearance of strategic cooperatives and alliances in the early mid nineties it is becoming a more and more popular strategy among SMEs. However the definitions are not clean and confusing, it can be laid down, that this strategy is an application to reach goals, not a goal itself. The procedure is still developing however the role of traditional contractual agreements is declining for the good of mutual benefit based long-term partnerships. Tertiary (service) sector and trade sector are the determinant in strategic alliances in Hungary. Marketing and procurement are the main fields of cooperate regarding value chain. Appling more fields at the same time to cooperate could give the opportunity for more effective business activity. This could be a new way for enterprises. Reliance in foreign partners is particularly low due to the dominant situation of foreign companies. Alliances among competitors could strengthen their market position against „not-joined” companies. The improving trend is obvious however Hungarian enterprises need to adopt rapidly to reach the level of developed countries. Despite this “pressure” I suggest slower development, because management and organizational deformations could be avoided. On long-term period disadvantages will be more significant compare to benefits with faster extension. For further and deeper research, sectors like services, trade and agriculture should be analysed to discover the nature of this alliances.

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**Online source:**

<http://www.cba.hu/en/index.php?categ=cba&id=3&ss=8795>

## SUSTAINABILITY LESSONS FROM NATURAL PROCESSES: A COMMON MODELING FRAMEWORK

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### **ABSTRACT**

*Computer-assisted, engineer-designed and -controlled processes play an essential role in the solution of the continuing economical and ecological crises regarding resources and reservoirs. Unified process-modeling methodology makes possible computational model-based comparison of natural and human-built process architectures. From the similarities and differences revealed by common model architectures, we can learn effective and sustainable methods of design and operation. The application of sustainability lessons will be explained through the example of the recently developed agrifood process network modeling methodology. In our approach, the transparency of investigated networks is based on the unified, scalable, multiscale model of simplified dynamic mass balances. We shall illustrate that, in addition to tracing and tracking the methodology supports, it provides transparent analysis of any details such as dynamic simulation of the selected and case specific process components (individual animals, food ingredients, contaminants). Having compared the models of natural and agrifood processes, we concluded that one of the key elements of future sustainability is to prefer neighbourhood cooperation in the utilization of local resources, as is usual in natural processes. Accordingly, our project tends to develop an exemplary region for the agrifood sector.*

Keywords: natural and human-built processes, computer modeling, sustainable-specific features

### **INTRODUCTION**

Key requirement in the finite space of resources and reservoirs is to achieve sustainability with the more conscious development of artificial process systems. However, we have to clarify, what does the concept of sustainability covers from engineering point of views, first of all.

The term of “sustainable development” has used first in the report of World Commission on Environment and Development of United Nations (*Brundtland*, 1987). They defined it as “those paths of social, economic and political progress that meet the needs of the present without compromising the ability of future generations to meet their own needs.”

Nowadays, not only the principles, but developed IT tools support the sustainable development, through the reveal of sustainability-specific characteristics and the implementation of these special features in the design of artificial processes. Broad range of articles, deal with the theme of sustainability from different points of views, use various mathematical and IT methods.

In a recent paper, Martinet investigates the question of sustainability from an economical aspect (Martinet, 2011). Having considered a closed economy, the author introduces a criterion method that consists of indicators and their thresholds as constraints, and solve it as a max-min problem. He highlights, that real world is more complex than a simplified test, and the problem is basically time-inconsistent, that's why sustainability thresholds may be revised time to time.

In a state-of-art paper (García-Serna et al., 2007) authors give a comprehensive review about green engineering and about new trends to achieve sustainable development, with special consideration of chemical engineering problems.

Li and his colleagues present an inexact stochastic quadratic programming with recourse (ISQP-R) method for resource management, with consideration of system dynamics and uncertainties (Li et al., 2011). They introduce the method through a water resource management and environment sustainability case study.

Another actual case-study is presented by deVoil et al. (2006). Authors investigate the sustainability trade-offs in cropping system. Based on the model of the agricultural-ecological system, they try to explore the sustainability specific issues of the investigated cropping system with the help of evolutionary algorithms.

In a 2009 paper Fiscus introduces a comparative network analysis for the nitrogen network of the US beef supply chain (Fiscus, 2009). He compares this artificial process with natural reference systems, namely carbon and nitrogen trophic networks that appear in the nature. He concludes that the applied ecological network analysis (ENA) method can be expedient in the analysis of human food networks, because it helps to understand the causes of problems and to find the adequate sustainable solution. However, the applied method is based on the comparison of similarities and differences of natural and artificial processes; there is an essential difference compared with our method. Namely, the applied ENA tool is atemporal (without any consideration of dynamic changes), while our method is based on dynamic modeling.

According to our understanding, most important task of IT tools and methods in supporting sustainability is not only to solve specific tasks, moreover give diagnosis and therapy for general problems.

## METHODS AND TOOLS

We have investigated several process systems, both natural and human-built ones, with the application of Direct Computer Mapping (DCM) methodology.

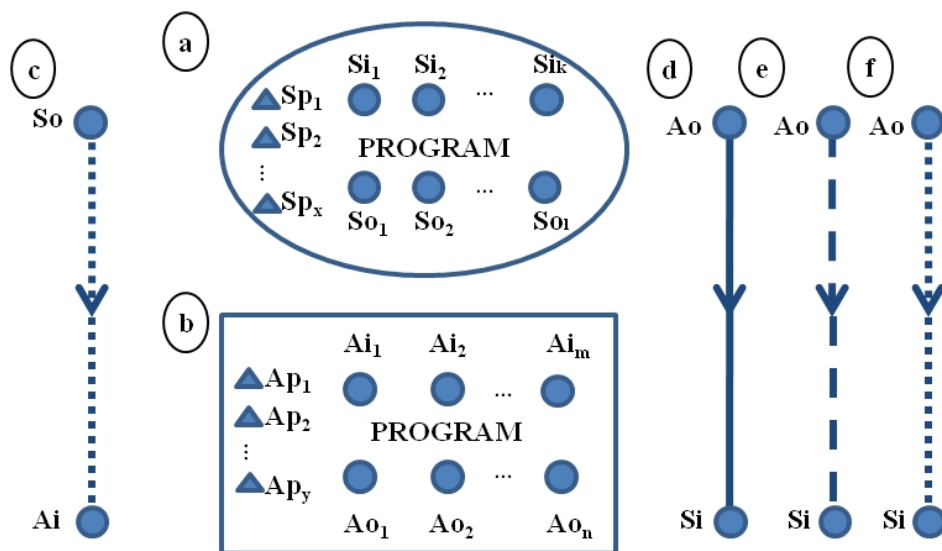
Basic principle of DCM is "let computer know explicitly about the structures and elements of the real world problem to be modeled" (Csukás, 1998). Accordingly, as shown in *Figure 1*, the natural building blocks of the elementary processes are described by unified state (signed with  $a$ ) and action elements (signed with  $b$ ).

State elements characterize the actual state of the process elements, while actions describe the transportations, transformations and rules about the time-driven or event-driven changes of the actual state. States and actions are connected by four kinds of edges. Increasing (signed with  $d$ ) and decreasing (signed with  $e$ )

connections transport additive measure from action to state elements. Signaling connections (signed with  $c$  and  $f$ ) carry sign from state to action elements, and backward. Both state and transition elements contain lists of parameter (Sp or Ap), input (Si or Ai) and output (So or Ao) slots (signed with circles and triangles), where the respective parameters and measures are presented.

Figure 1

Unified building elements of the process modeling method



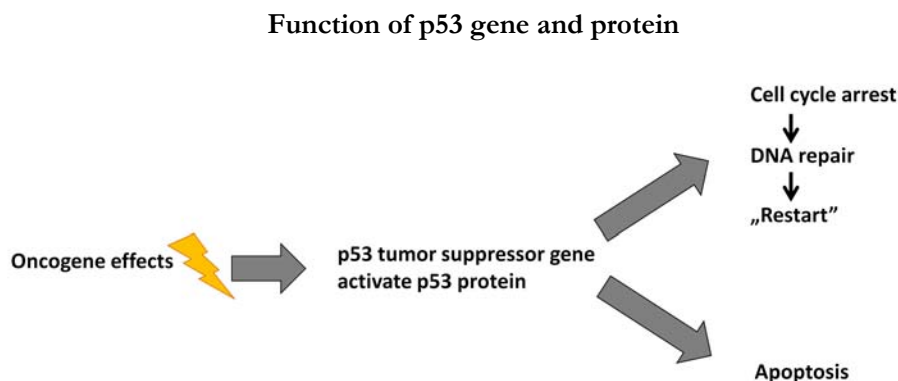
The discrete or continuous, as well as quantitative or qualitative functioning are described by brief local (e.g. declarative Prolog) program codes, associated with state and action elements and executed by a general kernel, built in a partly open software tools. The above method has been applied for the computational model based problem solving of various practical problems in the past years.

RESULTS AND DISCUSSION

The experiences obtained from the field of natural and human-built processes led to the recognition that natural processes are inherently more sustainable, therefore we have to learn and utilize these special features in the design and operation of human built processes. We demonstrate the characteristic points through the comparison of a natural (p53 related cellular signaling) and an artificial (slaughterhouse) process.

Natural example process is the signaling network of p53 protein (Figure 2).

Figure 2



In the framework of an international cooperation with biological and biomedical experts, last year we started the computational model based understanding and investigation of the p53 signaling pathways (Csukás *et al.*, 2011). In a few words, p53 gene usually called as the “guardian of the genome”. According to the current literature, it could play an essential role in the treatment of human cancer, that’s why better and detailed understanding of p53 related processes is very important. In a normal case, p53 gene is inactive in the cells. However, in case of oncogenes effect or DNA damage, it starts to initiate the production of the same named p53 protein. Main goal of this protein is to save the cell from proliferation. First, it slows down the cell processes and tries to repair the DNA. It also detects that harmful processes are irreversible, and at this point it starts the apoptosis.

In *Figure 3* we can see the structure of p53 related processes. This executable structure having composed from two related literature sources (Kim *et al.*, 2009; Kim *et al.*, 2010).

Human-built example in *Figure 4* is the processes of a slaughterhouse actor from the agrifood process network (Varga *et al.*, 2011). We have built the computational model with DCM method from the same unified elements (states, actions, connections, according to *Figure 1*), as in the investigation of p53 pathways.

The processes cover the slaughtering from the arrival of slaughter animals, through the slaughtering, refrigerating, chopping, and packaging; until the selling of the packages. The model is based on simplified stoichiometries, with respect to the characteristics of the investigated slaughterhouse (type of slaughter animal, obligatory waiting times, prescribed standards, etc.).

Having analyzed the natural and artificial examples, we can discover obvious similarities between them.

In the first place we can mention the multiscale character. Different spatial and temporal scales coexist beside each other, both in natural and human-built processes. Good example for the different spatial scales is that the same components can be found in various cellular organs within the cell. Temporal multiscale characteristic means, that the p53 related signaling takes only seconds, as well as a proliferation process might take days. The applied DCM method is able to manage these multiscale characteristics with the embedded features.

Figure 3

Executable structures of the investigated part of p53 process

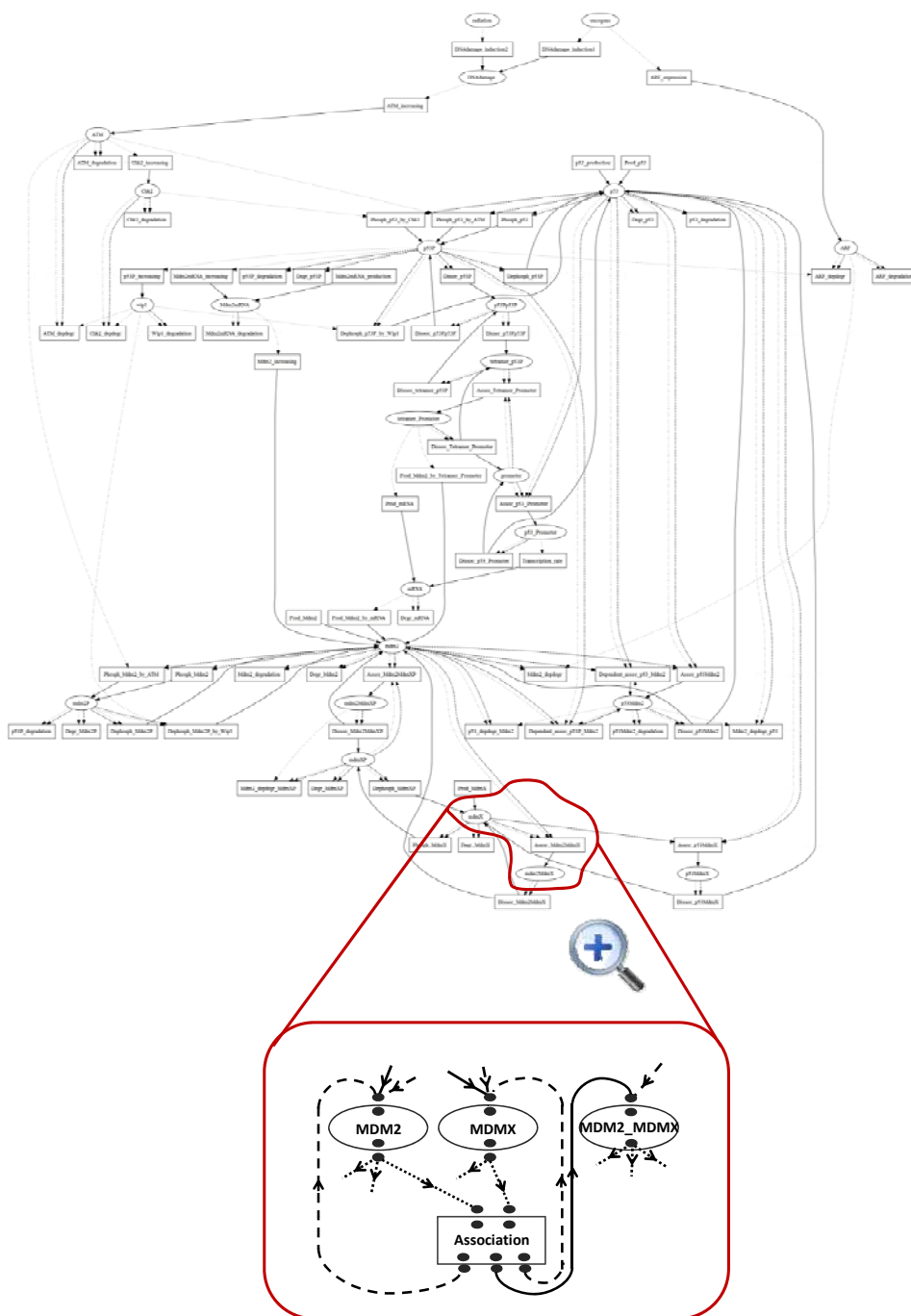
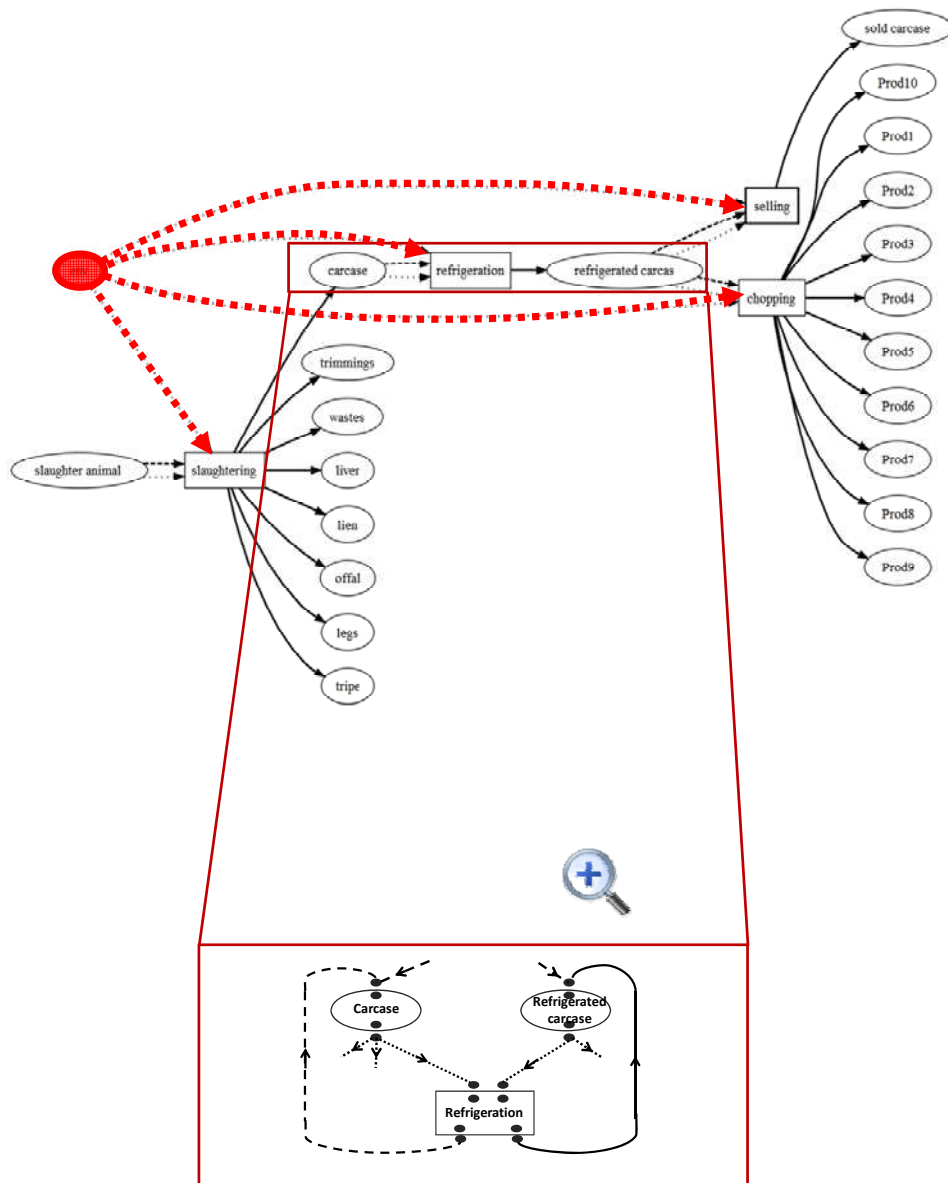


Figure 4

Executable structures of the investigated slaughterhouse process



Another similarity is that in a system level, both in natural and in human-built processes, networks of balance and influence routes can be interpreted over the dynamic net model. Balance routes can be defined as the alternating series of increasing (solid edges in Figure 3 and Figure 4) and decreasing (dashed edges in Figure 3 and Figure 4) connections. Influence routes means the alternating series of



reading (dotted edges in *Figure 3* and *Figure 4*) and modifying (solid/dashed edges in *Figure 3* and *Figure 4*) connections.

Finally, the most important similarity that very different processes can be built from the same unified elements with the same principles (see Fig.1). As it shown in the lower parts of *Figure 3* and *Figure 4*, the p53 signaling processes and the slaughterhouse processes can be described with the same unified elements, as well as the structure can be executed by the same general kernel of the DCM simulator. In spite of the evident similarities, the differences between natural and human-built processes are more interesting from the viewpoint of sustainability. The most important differences can be summarized as follow:

1. Regarding *model specific conservation laws*, both processes are built from *stoichiometric balances*. However, a significant difference is that natural processes are inherently self-determined, while in case of human-built ones, they require human decisions. For example, a cell process can work without any outside effect, while in a slaughterhouse operation we have to give the initiating signs from “outside”, by means of the respective human decision (highlighted with red dotted lines in *Figure 4*).

As a consequence of self-determinedness, natural processes prefer local solutions, oppositely from the more and more global human-built processes. In a cellular process a component reacts with the closest reaction partner, as well as all of the metabolic, signaling and DNA-related synthetic processes run in each cell, locally.

However, in the human-operated food networks we carry the food from one side of the world to the other, senselessly.

2. Common feature is that the *primary (controlling) information is carried by conservational vehicle processes*, both in natural and artificial processes. However, the direct feedback on the vehicle process exists only in the natural processes. In the lack of feedback, artificial processes are often characterized by (sometimes useful, but sometimes harmful) far reaching effects.

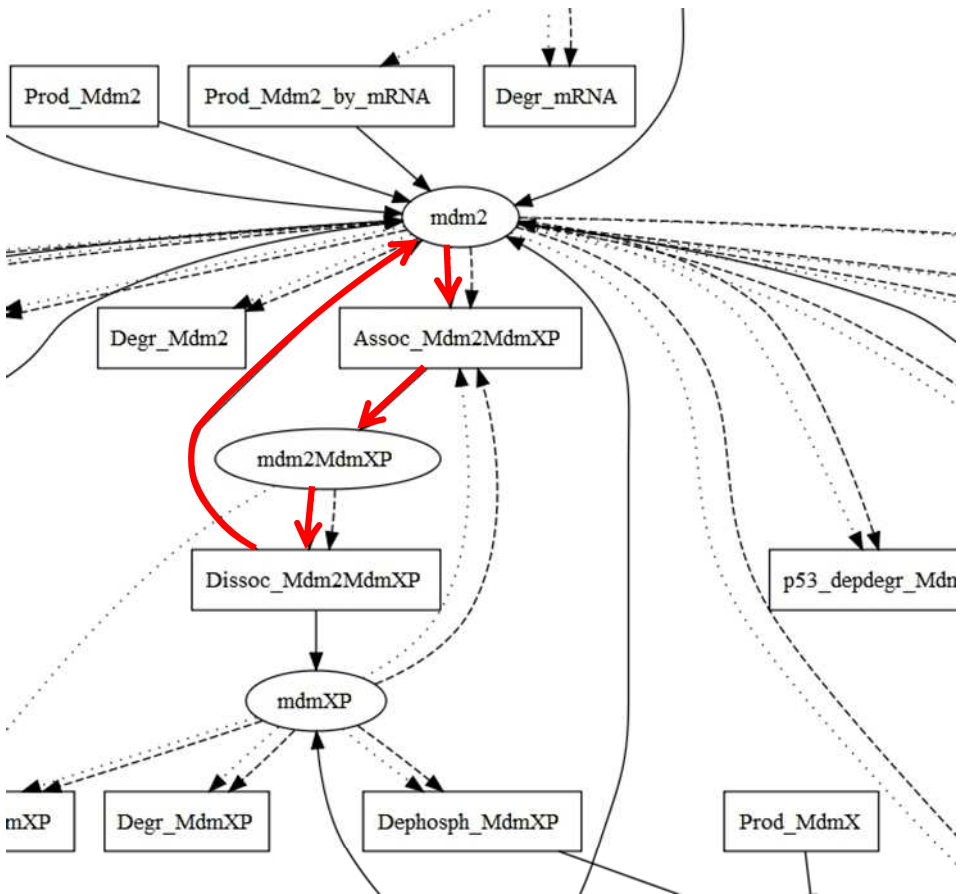
As a consequence of the above described properties of the primary informational processes, the basic architecture of natural processes can be characterized by the mutual feedback between the functionally connected neighbors (see an example, highlighted with red lines in *Figure 5*). However, the basic architecture of the artificial processes is determined by the hierarchically organized human decisions.

The following example demonstrates the significance of the feedback on the vehicle process. In a marginal case, if the reparation of DNA is impossible, p53 signaling pathway initiates the cell death, having killed itself and its processes with this action. In contrary, in the world of artificial processes, some false, chaotic information might cause disturbances in a far point of the world, while in the most cases, it won't cause any moderating feedback on the initiating persons.

3. *Secondary (evaluating) information appears only in the human-built processes*, in form of objectives. Arising from it, evolution principles of the artificial processes are the various forms of optimization, organized usually in hierarchical architecture. In natural processes the evolution principle is the natural selection, realized in competitive/cooperative process architecture.

Figure 5

A feedback loop at the p53 signaling network



Nevertheless, the consciously designed cooperation of the functionally connected neighbors can be applied in the human-built process architectures, too. Cooperation means much more than mutual goodwill. Engineering designed and controlled cooperation means that the functionally connected neighbors tend to evolve mutually suboptimal operation.

### CONCLUSIONS

Derived from the analysis, based on the investigations of various natural and human-built process systems in the past years, we can state, that we have to utilize the sustainability-specific features of natural processes in the development of artificial process systems, consciously. The most important assessments can be summarized as follows.

First of all, we have to develop the artificial process systems in a bottom-up way. To keep the balance in the finite space of resources and reservoirs, we have to make the processes self-determined, as much as possible.

Accordingly, we have to prefer the local (neighborhood) solution for supply and recycling.

The most important thing is the conscious design of cooperative control and evaluation feedback between the functionally connected neighbors of the artificial processes.

Another important question is the moderation of far reaching effects of international processes. In the era of informational society, we have to inhibit the harmful effects of the chaotic information flow that is separated from its vehicle process.

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## ROLE OF IIM SHILLONG IN THE REGIONAL DEVELOPMENT OF THE NORTHEASTERN PART OF INDIA

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### ABSTRACT

*The IIM Shillong is the seventh Indian Institute of Management set up by the Government of India, located in the north eastern state of Meghalaya. The institute has set itself the ambitious target of not only offering conventional PGDM degrees but also introducing students to the concepts of sustainability. To this end, each batch of PGDM students undergo a two week compulsory foundation course on sustainability taught by internationally renowned faculty drawn from all over the world. Students who graduate from this institute are expected to be not only good managers but also better human beings. Students for the Master course are chosen after a rigorous country-wide selection process called CAT (Common Admission Test) and the Shortlisted candidates are screened through a process of personal interaction with an expert panel constituted for the purpose. The majority of the students come from an engineering background (BSc), some of them have working experience in industry as well. In addition to the MBA course, the institute also offers short term programmes with high regional relevance. These courses are designed to act as catalysts for the socio-economic development of the region and to inculcate better management techniques and skill enhancement to the existing work force drawing from both the government and the private sector. The institute and the faculty members are at the forefront of an effort to help both government and industry to streamline their work and to ensure greater productivity and effectiveness. In this regard, a number of departments of the government and industrial sector approach the IIM for help in the form of consultancy. It may be said that the IIM Shillong provides a yeoman service to the country and the region by bringing about desirable social economic change to a region that is generally considered backward in relation to the rest of India.*

Keywords: role of universities, regional development, application (CAT) system, India, IIM Shillong, infrastructure, education, third role of universities, triple helix

### INTRODUCTION

The IIM Shillong is the seventh Indian Institute of Management set up by the Government of India. It is located in the north eastern state of Meghalaya. It is nearly three years since IIM Shillong started with a vision to be a Centre of Excellence with innovation and diversity as the two important projecting planks. The institute has set for itself an ambitious target of not only offering conventional PGDM degrees but also introducing students to the concepts of sustainability. To this end, each batch of PGDM students have to undergo a two week compulsory foundation course on sustainability, taught by internationally renowned faculty drawn from all over the world. The Institute has set up standards in its admission

process, curriculum and pedagogy which are being emulated by other institutions. Students are encouraged to think independently and not to be averse taking risks in doing things innovatively and differently. Students who pass out from this institute are expected not only to be good managers but also better human beings.

Shillong is located at an altitude of 1,496 m above the see level, with a population of 260 000 people (Figure 1). It is capital of Meghalaya, one of the smallest states in India. The city is surrounded by verdant hills, which gives it a cool salubrious climate and a panoramic view of the graceful scenic country-side.

**Figure 1**

**Location of state Meghalaya and Shillong city**



Prof. Ashoke K. Dutta is the founder director of the RGIIM Shillong, and he started it with the vision of expansion and mobilization of facilities for offering good quality management education and research in the North-Eastern region of India. The Rajiv Gandhi Indian Institute of Management (RGIIM) offers a comprehensive two-year postgraduate diploma in management program (PGDM) in addition to other courses. The institute aims to develop exceptional leaders for an economically and ecologically sustainable society, with the help of a unique curriculum that comprises a mix of compulsory and elective courses, supplemented by specialized courses.

In our publication we try to give an overview about IIM Shillong, in the field of education, infrastructure, research and regional development activities. In addition we try to define to which category – of the recently made third role of university categories – IIM Shillong matches. We hope this investigation would be of assistance not only to the university but to the collaborating partners as well, and provide a better appreciation about the third role of universities in other parts of the world, and thereby improve their own functioning as well.

### **EDUCATIONAL ACTIVITIES OF IIM SHILLONG**

The main activity of IIM Shillong, at the moment, continues to be Post Graduate Management Education – as there is neither Bachelor nor PhD programmes. Students to the Master course are chosen after a rigorous country wide selection process called CAT (Common Admission Test) and then the shortlisted candidates are screened through a process of Personal interaction with an expert panel constituted for the purpose. The majority of the students come from an engineering background (B Tech and M Tech), though there are many candidates who come from backgrounds as diverse as accountancy, commerce, economics, law, sociology and the humanities. Many of them have working experience in industry as well. It is entirely through merit that they qualify through this very rigorous, clean selection process successfully. Neither university, nor the local government can influence the selection process.

In addition to the PGDM course, the institute also offers short term programmes with high regional relevance. These courses are designed to act as catalysts for the socio economic development of the region, inculcate better management techniques and skill enhancement to the existing work force drawn both from the government as well as the private sector.

The institute, as well as the faculty members, is also at the forefront in helping both the government and the industry in streamlining their work and ensuring greater productivity and effectiveness. In this regard, a number of departments of the government and also industries approach the IIM for help which is offered in the form of consultancy.

#### **Special courses**

In addition to the core courses RGIIM Shillong offers special courses for example as below:

#### **Foundation Course on sustainability**

IIM Shillong, with its emphasis on Sustainable development, is among the first institutes in the country to conduct a week long Foundation course on Sustainability. The first foundation course of sustainability was conducted by the internationally renowned figure on sustainability, Prof Paul Srivastava, currently Chair of the John Molson School of Business of the Concordia University, Canada. For the PGP batch of 2009 the course was taken by a visiting faculty from the Bucknell University USA – Prof. Jamie R. Hendry, while the 2010 PGP batch was

taught by Prof. Raymond Paquin of the Concordia University. The course focuses on an array of pressing issues like global poverty, green house gases emission, inclusive development and injustice

### **Course on sports management**

RGIIM Shillong has roped in Prof Douglass Michele Turco, a sport management specialist from Drexel University, USA to undertake a course in Sport Management for the second year students as well as a special certificate course on sports Management. Some of the areas covered in this course include sport sponsorship, sports tourism, event management and globalization of sports.

### **Research activities of IIM Shillong**

In spite of the fact that the Institute has less than 30 faculty members there were 3 books published, and several research papers published in international and national journals and conferences in the academic year of 2010-2011. These publications are summarized every year in the Academic Reports so are the research and consultancy projects. The list of recent publications can be found on the website of the institute. ([www.iimshillong.in](http://www.iimshillong.in))

### **Vision to Victory Research Programme**

This programme is being conducted by IIM Shillong and Drexel University.

## **THE INFRASTRUCTURE OF IIMSHILLONG**

IIM Shillong is currently operating out of its temporary campus. This campus previously housed the North Eastern Hill University (NEHU) and is at the heart of the city of Shillong in a place called Nongthymmai. The design and construction of the new campus has also started.

As the North-eastern part of India is generally considered backward in relation to the rest of India, the motto of the institute is: “Where logistics may be difficult, technology may be the answer”. Thus, although the campus is temporary, the infrastructure is very modern, and easily the envy of other universities.

IIMShillong boasts of the latest sophisticated equipments with regards to keeping pace with the trends in the modern Educational field. These include:

- Enterprise Resource Planning
- Wireless Campus
- IIM Shillong SharePoint Portal
- Moodle-Learning Management System
- IIMS Wiki
- Video Conferencing System
- Interactive Whiteboards
- Surveillance System
- Biometric & Attendance System
- Knowledge Center – Library



### Enterprise Resource Planning system:

On 6th August, 2009, IIM Shillong became the first among all the centrally funded educational institutes and universities, which also includes IIMs and IITs, to go live on a comprehensive campus wide ERP system.

The institute has implemented:

- PeopleSoft Campus,
- PeopleSoft Financials,
- PeopleSoft Enterprise Human Resources,
- PeopleSoft Payroll,
- PeopleSoft Absence Management,
- PeopleSoft Enterprise Purchasing,
- PeopleSoft Enterprise Inventory,
- PeopleSoft Recruiting Solutions

### Wireless Campus

IIM Shillong also has Wi-Fi connectivity through the perimeter of the campus. A state-of-the-art Wireless Mesh Network (WMN) has been set up for seamless connectivity with necessary redundancy.

### IIM Shillong SharePoint Portal

Helps to the users to share information on a much updated level (Figure 2).

Figure 2

### IIM Shillong Share Point Portal



### Moodle-Learning Management System:

Moodle is an Open Source Course Management System (CMS), very popular among educators around the world as a tool for creating online dynamic web sites for their students (Figure 3).

**Figure 3**

### IIM Shillong Moodle Learning Management System

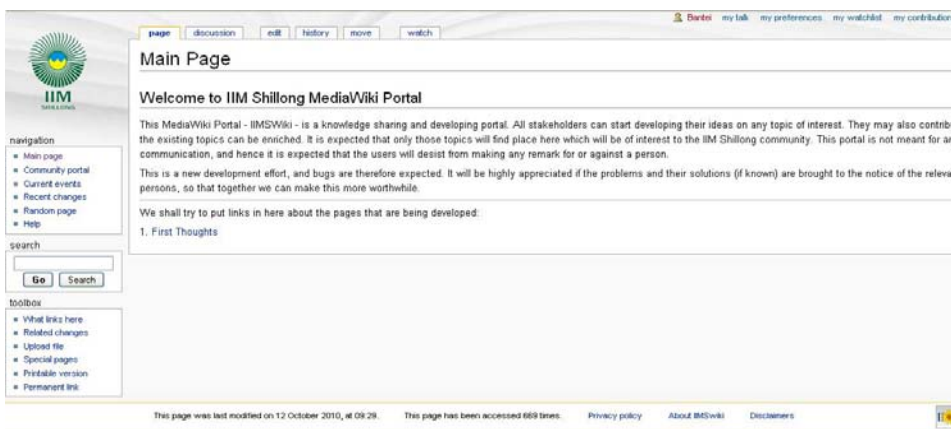


### IIMS Wiki

A knowledge sharing and developing portal (*Figure 4*).

**Figure 4**

### IIMS Wiki of IIM Shillong

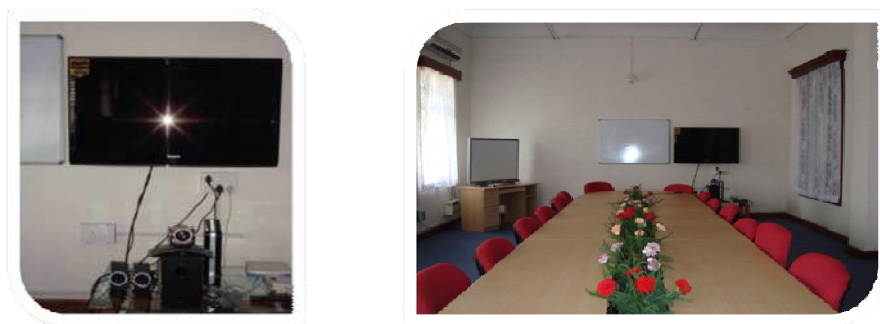


### **Video Conferencing System**

Through the hardware based high definition Videoconferencing System, IIM Shillong connects its Students and faculty to the outside world (*Picture 1*). This Videoconferencing System is connected via telephonic (i.e. ISDN PRI link) as well as IP network. Many Conferencing calls have been carried out in and outside India for lectures, presentation and interviews with other Institutes and Corporate Organizations.

**Picture 1**

#### **Video Conferencing System of IIM Shillong**



**Interactive Whiteboards** (*Picture 2*)

**Picture 2**

#### **Interactive Whiteboards at IIM Shillong**



The author considers this as one to the best examples of the use of technology. As there is the possibility of power failure all the IT devices are connected to the central UPS (uninterruptable power supply) power supply – this ensures that the smart board can be seen, but the black or white board may not be visible because of the shortage of light in the room.

### **Surveillance System**

IIM Shillong has installed the surveillance System for full Security of the campus perimeter (*Picture 3*).

**Picture 3**

#### **Surveillance System of IIM Shillong**



### **Biometric & Attendance System**

IIM Shillong also has implemented the Biometric attendance system for all the Faculty and Staff of RGIIMS (*Picture 4*).

**Picture 4**

#### **Biometric Attendance System**

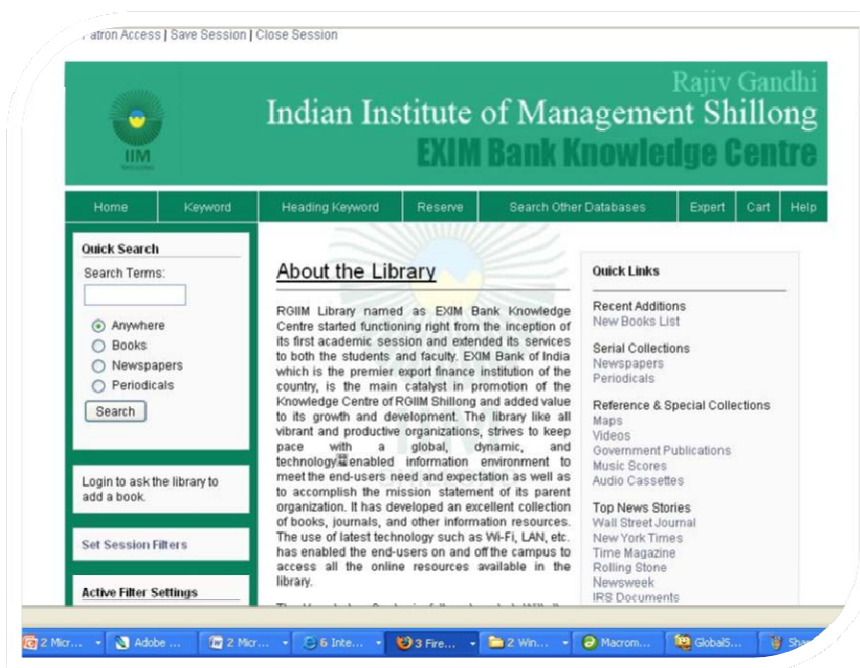


### **Knowledge Center – Library**

A Knowledge Centre Portal is being used by students as an Online Public Access Catalogue (OPAC) for searching books, journals etc. (*Figure 5*).

Figure 5

### Knowledge Center Portal of IIM Shillong



Since all books are RFID tagged, books are easily located on the shelves using the hand-held reader (*Picture 5*).

Picture 5

### Knowledge Center – Library of IIM Shillong



When entering the library the RFID gate sensor detects the RFID tags, but signals only books that are not issued (*Picture 6*).



**Picture 6**

**Knowledge Center – Library: RFID gate**



Students can return the books by just dropping the book into the return kiosk (Picture 7).

**Picture 7**

**Knowledge Center – Library: Return Kiosk**



To get acquainted with the modern infrastructure of the temporary campus we can imagine that this institute plays an important role even by its very existence. It has been able to demonstrate that it is possible to set up a high-tech campus in a region considered to be one of the less developed areas of India.

**REGIONAL DEVELOPMENT ACTIVITIES OF IIM SHILLONG**

IIM Shillong has the aim of being a center of excellence not only in the field of education but in the regional development as well (Picture 9 and Picture 10). That is why IIM Shillong has set up a Centre for Development of North Eastern Region (CEDNER)

(<http://www.iimshillong.in/programmes/cedner.asp>) (Formerly: Accelerated Learning Centre (ALC). It offers a broad diversity of programmes in varied disciplines of business management skills and has helped participants to expand and extend their business operations and stimulate their business through management skills.

CEDNER has been constituted right from the inception of the Institute and is involved in organizing both short term and long term programmes relevant to the local community and society of the state and the region .The members of the local community who may otherwise have limited opportunities for getting the latest exposure to training for skill development is provided with such opportunities by the Institute. The objective of the Institute is to respond to the local needs and make the facilities of the Institute available for the training of the local talented youths of the region. The Centre offers a unique opportunity for the young entrepreneurs, businessmen and women, business executives and officers of the region to avail of the opportunities of training in skill development in various phases of their business and entrepreneurial activity. The Centre has already offered a series of such practice oriented management courses.

Some of the programmes organized so far:

- Course on Retail Management
- Sports Management
- Business Skill for Small Business
- Workshop on Effective Management
- Entrepreneurial Development Course

#### **Picture 8**

#### **Prof Ashoke K Dutta with the participants at the workshop on Increasing Media Profitability**



**Picture 9**

**A participant of SERM Course receiving certification from Shri Shekhar Dutt (centre) and Prof A K Dutta (extreme right)**



The update upcoming courses can be found on the website of CEDNER: <http://www.iimshillong.in/programmes/cedner.asp>

IIMS through CEDNER has successfully created a highly stimulating environment for the business community of Shillong and proposes to continue with the endeavor in the coming years by regularly organizing more such Courses.

**ANALYZING IIMSHILLONG IN THE FRAMEWORK OF “THIRD ROLE OF UNIVERSITIES” AND “TRIPPLE HELIX MODEL”**

As possible research topic the authors suggest to analyze IIM Shillong in the framework of the “third role of universities” and “triple Helix model” (*Etzkowitz and Leydesdorff, 2000*). This investigation could not only define which roles – defined by these models - this university fulfills, to which category it belongs to, but it could help to improve the vision, and the development of this institute as well.

This investigation is beyond this publication, but would be edifying.

**CONCLUSION**

In our publication we first introduced Rajiv Gandhi Indian Institute of Management (IIM) Shillong, the seventh IIM of India, located in the north eastern state of



Meghalaya. Providing only PGDM courses – no bachelor education. Second we highlighted the main features of the CAT system of application in India. Then we introduced with many pictures IIM Shillong’s infrastructure, the education system, and we highlighted and investigated the role of RG IIM Shillong in the regional development. At the end – as a further research topic - we offered an investigation proposal to define to which category of the triple helix categories of universities this organization belongs to. We hope this publication and the offered investigation helps to fulfill the ambitious targets of this university.

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[www.iimshillong.in](http://www.iimshillong.in)

[www.iimshillong.in/programmes/cedner.asp](http://www.iimshillong.in/programmes/cedner.asp)

## **KNOWLEDGE SERVICE SUPPLIES AND BUSINESS MARKETING TASKS OF HIGHER EDUCATION INSTITUTIONS**

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### ***ABSTRACT***

*When the marketing activities of Hungarian universities are analyzed, it can be concluded that these activities focus almost solely on the marketing of enrollment and neglect any kind of communication with corporations. Yet modern universities have a wider range of tasks than merely education and research. The third objective of universities is to create new knowledge and utilize it: a new entrepreneurial function additional to traditional research and teaching activities. This also influences communication activities, since universities should compete not only for the best students and academics but also for corporate commissions. Also, they should cooperate with industry players, other private R&D institutes, investors, and other universities. The corporate sphere takes the view that universities should contact companies in order to widen cooperation with companies and expand commissions for innovation and that they should acquaint companies with their services, which is likely to require hard work. The establishment of relationships between a corporation and a university depends on people qualified and positioned to take on the task. Personal and face-to-face communications are necessary for effective communication. An element of this communication is analyzed in this study: the appearance of knowledge service supplies on Hungarian university web sites. The study also focuses on the usable knowledge provided by doctoral schools and the websites of Technological Transfer offices established in 2010-2011 through EU tender resources and the connections of these websites.*

Keywords: innovation, knowledge transfer, technology transfer, university-corporate relationship

### **TRENDS OF HUNGARIAN RESEARCH-DEVELOPMENT AND INNOVATION**

In a financial crisis and in its aftermath, innovation has an essential role in the sustainable and lasting upswing and long-term, economic growth of countries; however, science, technology and innovation can lead to new ways of handling of the biggest challenges societies face such as demographic changes, global health issues and climate change. The role of innovation has never been so important, and countries should invest in knowledge productively if they wish to achieve results in the above-mentioned areas. Economic affairs of the past years, however, have also placed innovation in a difficult situation, and companies faced decreasing demand and borrowing difficulties, which hindered their innovation efforts. In order to handle the crisis and improve perspectives of future innovation and economic

growth, countries should now increase their investment in the academic basis, governmental research and human resources development, that is, their investment in education, and they should also improve their national and international collaborations. One of the most essential areas is a more effective regulatory system so that not only research-development and higher education, but also connections between the industry and research can be strengthened, and interested community members should also be involved via structural expansion. Most countries develop technologies and have investments in key areas of research and developments of high technology (including biotechnology, nanotechnology, info-communication technology, new materials and modern production technologies); however, they should not forget to develop their political support in different phases of the innovation value chain (for example, ensuring incentives for research and development such as support and tax relief, or supporting the establishment of concrete technical clusters or venture capitals) in the interests of a better return on investment. Increasingly more countries rely on incentive tax reliefs; however, it is still the direct governmental financing in the form of support, subventions and credits that is the most prevalent way of supporting business research and development, in which programmes based on competition and merit are considered growingly more important. The balance between direct financing and indirect measures varies due to certain factors such as the industrial structure of a given country, the presence of large research and development intensive corporations and the intensity and specialization of research and development activities (OECD, 2010).

It is the research development expenditure relative to GDP, also known as “R&D intensity”, which is the most frequently applied method to measure innovation activities and compare them internationally<sup>1</sup>. R&D expenditures are normally categorized by financers and by utilization areas or academic fields. On the basis of this, expenditures of the government, those of the business sector (enterprise) and foreign expenditure are distinguished. R&D expenditures of the business sector even have a different name: BERD<sup>2</sup>. These indicators, which demonstrate how much a country spends on the production of new knowledge relative to its financial capacity, might suggest that a lot of new inventions are created and utilized in countries which spends a lot on knowledge production.

In our country, the amount of money spent on research and experimental development has been increasing continuously since the beginning of the post-communist transition period, and the rate of increase in expenditures has accelerated significantly in the past years. The proportion of the total research-development expenditure relative to the gross domestic product can be considered relatively low compared to proportions in the European Union and the world. Statistical methodology defines the research-development expenditure as the total sum of research-development costs and research-development investments (cumulative expenditure). It includes any financial resource from a domestic or foreign source, which was intended to be spent on research or development originally. Research-development expenditure includes labour costs and material expenditures, and

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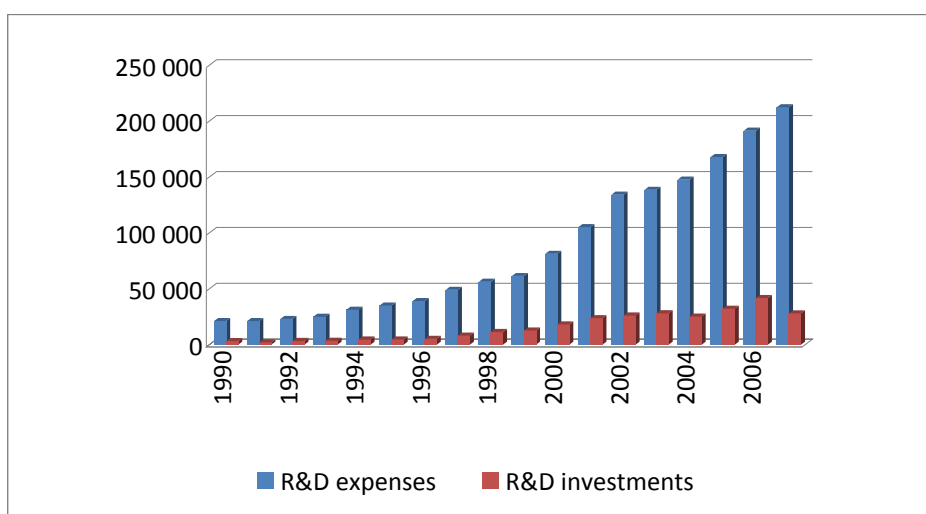
<sup>1</sup>The indicator is also known as GERD (Gross Domestic Expenditure on R&D).

<sup>2</sup>Business Expenditure on R&D

research-development investment means the acquisition value of new and used tangible assets and computer softwares. The majority of domestic research-development expenditures comprise research-development costs, which are used to cover the wages of those employed in the process and the costs of research-development work related to the existent equipment. If the share of investments or else a more effective allocation of resources were to be implemented, it could significantly improve the competitiveness of the research-development sector and this way, it could also contribute to the growth of knowledge and technology intensive sectors (Figure 1).

**Figure 1**

**Distribution of R&D expenses and investments (million HUF)**



Source: Hungarian Central Statistical Office (HCSO), 2009

The financing structure of expenditures comprises four parts. First, significant material resources are provided by corporations, which conduct research-development activities besides their main profile and have their own research centres to develop technologies to be used for their production and manufacturing. The government as another main actor providing financial resources also appears in the financing structure, contributing significantly to the quantity of the usable resources. Other national and foreign resources can be found besides these two dominant actors (Figure 2).

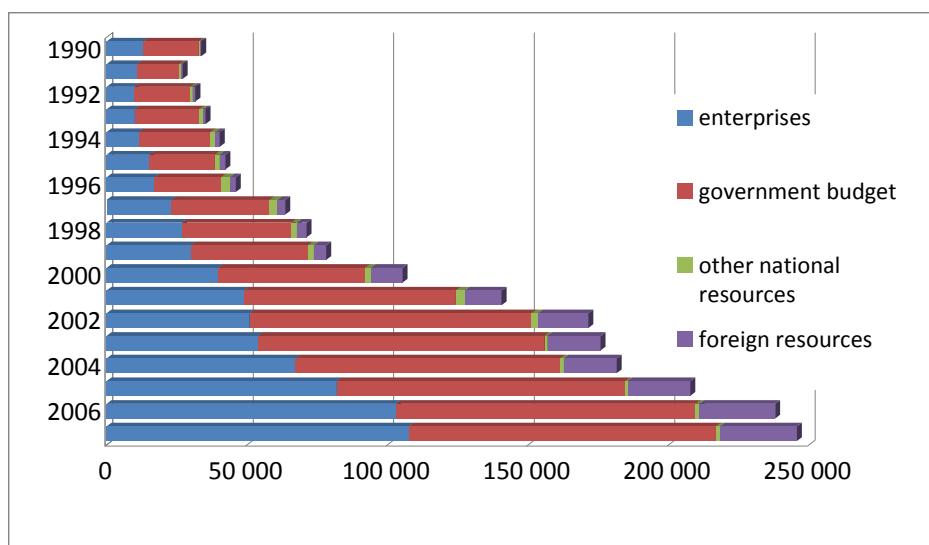
This indicates that firms more actively deal with the acquisition of new knowledge and perhaps also with the utilization of this knowledge. This is partly due to the multinational companies in Hungary, which are relocating processes of increasingly higher knowledge content here. (Némethné, 2010)

Innovation plays a crucial role in the convergence of the Hungarian economy and the indispensable improvement of competitiveness. One of the most essential

questions is how innovation willingness and competence can be incited and developed at a national economy level and in the sphere of enterprises. The notion of innovation has become more prevalent than it was a decade ago, partly because it is discussed in the media almost on a daily basis. On the other hand, there is still some uncertainty and sometimes even some misconceptions about the definition of innovation. In many cases, even the data vendors involved do not interpret precisely the definition from the Oslo handbook published by OECD, which is accepted internationally in the methodology of surveys. It reads “the innovation is the implementation of a new or a significantly upgraded product (good or service) or process, a new marketing method or a new organizational method in business practices, workplace organizations or external relations” (OECD, 2005. 46. p.)

**Figure 2**

**Financial resources of research-development expenditures (million HUF)**



Source: HCSO, 2009

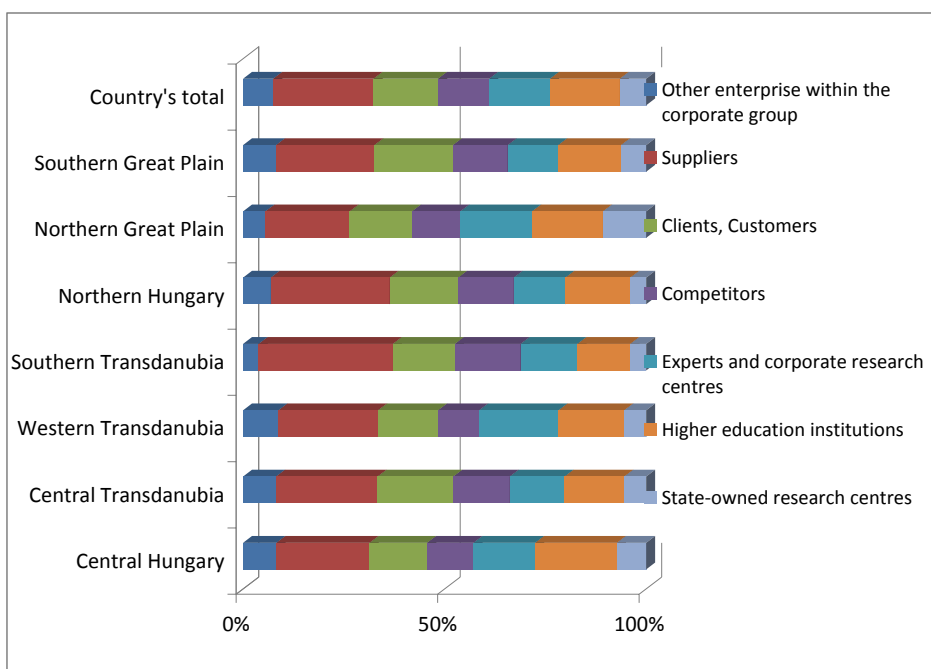
On average, 37.8% of the organizations conducting modernization processes have established partnerships in order to implement their developments successfully. Every fourth innovative enterprise cooperated with its own suppliers during the implementation of developments and their role was crucial in all regions. The second most important partners were the higher educational institutions. Firms, however, collaborated more intensively in those regions where mostly economic and technical trainings and research were conducted (Figure 3).

When the situation of innovations in Hungary is observed, it can be concluded that innovation is one of the weakest points of Hungarian small enterprises (Szerb, 2008); however, favorable, not yet ideal, environmental opportunities seem to be emerging for the development of this competitive factor: bases of technology transfer, which are still

not utilized completely, are encouraging (the proportion of people employed in high-tech and medium-tech sectors is high and the rate of governmental financing and corporate R&D is increasing). Even though R&D expenditures are increasing dynamically, they are still not sufficient, and in addition, the financing structure is far from being ideal. A further factor hindering the spread of innovation is the lack of qualified labour force; consequently, companies opt for the naturalization of intellectual products instead of relying on innovations. In Hungary, a mere 8% of holders of Hungarian and European patents in force in Hungary were Hungarian in 2009. 92% of the holders were from abroad, with 26% German and 14% American holders at the top (Figure 4).

**Figure 3**

**Distribution of innovative cooperations by partner types, 2004–2006**



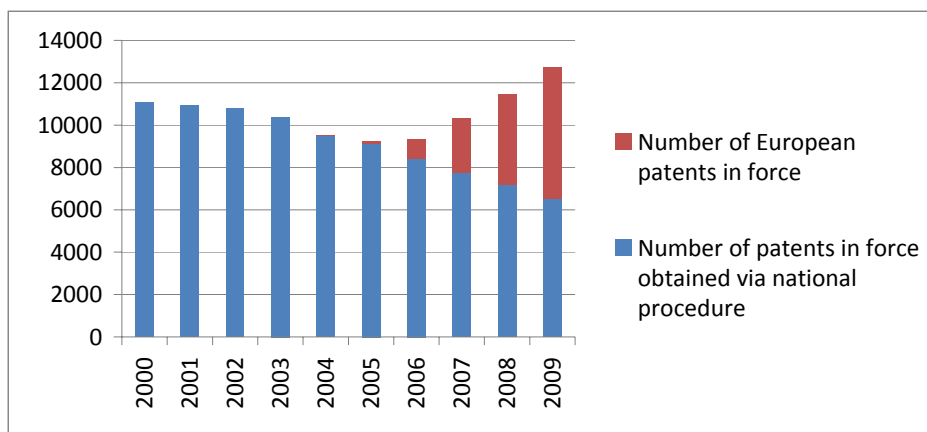
Source: HCSO, 2009

**INNOVATION POTENTIAL IN DOCTORAL TRAINING**

Doctoral training cannot be considered a traditional training form. The point of such training is to prepare and assist research and productive work. The three-year-long training is normally followed by a phase of more active research and productive processes. Ideally, the basis of a final dissertation is either an intellectual product or an objective one, which can offer certain academic novelty and can be adapted and utilized in the society. Therefore, in an ideal case, the staff and the trainees conduct innovative activities in doctoral schools.

**Figure 4**

**Number of patents in force in Hungary (2000–2009)**



Source: *Annual Report of the Hungarian Intellectual Property Office, 2009*

Doctoral training is often criticized for conveying mostly theoretical extra knowledge which is not utilizable in practice. These opinions could be altered through the communication processes of higher educational institutions. Communication processes and opportunities for collaboration deriving from the communication should be intensified mainly with respect to corporations and other research-development institutions.

### **COMMUNICATION BETWEEN HIGHER EDUCATION AND CORPORATIONS**

Measuring innovation willingness is complicated since several “soft” elements such as knowledge, accumulated know-how, intellectual property and patent rights and last but not least management competence are involved. Besides these, market conditions typical of the given country and region such as the intensity of competition and different economy structures, etc. should also be taken into account.

On the other hand, growth and innovation capacity of the economy and enterprises do not only depend on the offer of the “knowledge industry”, namely the research-development sector, but also on its faculty how it can apply and distribute the results of the knowledge industry and the new technological processes. (*Báger, 2005*)

#### **Communication via technology and knowledge centres**

During focus group interviews<sup>3</sup> conducted with enterprises and heads of technology and knowledge transfer centres of the university, representatives of the

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<sup>3</sup> The opinion is based on four focus group discussions conducted with innovative enterprises in 2010 and 2011 (ed.)

university revealed their expectations that it was entrepreneurs who should contact the university in the course of technology transfer processes, possibly with a concrete idea, task and commission or with a request for the solution to a given problem. According to corporations, even in these cases, universities do not act or think as profit-oriented organizations offering services and forget that when they provide corporate services they do not represent a non-profit organization in the knowledge market. In order to compete with profit-oriented enterprises and research centres providing R&D services as well as with the development units of enterprises, universities should have proper offers, references and successful projects, which can be used as references.

On the other hand, in many cases, it is not enough to exploit the demand for services but it should also be generated, because the majority of the enterprises – mostly small size enterprises – are not aware of what can be the solution to their problems, they cannot define their requirements precisely and they cannot suppose – mostly corporate executives who were socialized on the former Humboldt university model - that universities themselves are capable of producing and conveying knowledge, which can be useful for the economy and the society. These entrepreneurs consider universities too distant, “frightening” and complicated and they, the “small” ones, do not dare to approach them. That is why, it is the task of universities to generate marketable service offers and acquire partners.

In terms of communication, there are two important expectations universities are required to meet:

- to increase their reputation and to create a favourable image of universities (with references and PR) so that the university can emerge as a suitable solution tool and cooperative partner whenever a new problem arises in a given – e.g. technical, economic or other – special field;
- to intensify customer acquisition via marketing function: large corporations expect universities to approach them first; however, small enterprises should be acquainted with the new university functions

Knowledge is conveyed from universities towards corporations typically through Technology Transfer Offices or Centres. The organizational unit at universities supporting technology transfer is not a Hungarian specialty; however, their objectives and operation have special characteristics in Hungary.

First of all, it should be defined what technology and knowledge transfers are and how they differ.

Definitions are devised by researchers working at universities and it is a rather interesting situation that these definitions refer to their own activities so they can be accused of being subjective while they are creating notions. Several experts deal with the definition of knowledge; however, only a few experts have tried to define technology transfer (*Balogh, 2006*). According to Wittamore’s definition, technology transfer is “the transfer of new knowledge, products or processes from one organization to another *with business benefits*” (*Wittamore et al., 1998. 2. p.*) On the basis of Decter’s terminology, the organization where the transfer proceeds from is called supplier, whereas the organization that receives the transferred knowledge, product or process is called acquirer. (*Decter et al., 2006. 1-2. p.*) Etzkowitz interprets



the technology transfer as a two-way process between the university and the industry. (Etzkowitz, 1998)

Wittamore suggests that the object, the actors and the purpose of the transfer should be clarified for the definition. On the basis of the definitions devised so far, the object of technology transfer can be new knowledge, products or processes (Wittamore, 1998), tools (Bozeman, 2000. 2. p.), knowledge produced in an academic institution, technology, academic or technical know-how, technology-based ideas or research results (Prodan et al., 2006) and the application of knowledge utilized in practice (Tornatzky, 1998).

The purpose of the transfer is the utilization of knowledge with profit maximization: utilizing knowledge (Etzkowitz, 1998), economic development (Lee, 1996), transforming university research results into marketable products (Powers and McDougall, 2005) and business benefits (Wittamore et al., 1998).

It was surprising to realize that while universities try to take part in technology transfer processes in accordance with definitions provided by researchers, companies follow a different line of thoughts. In Hungary, the National Development Plan, the New Hungary Development Plan and the New Széchenyi Plan emphasize the importance of the knowledge industry. That is why, several calls for tender have been aimed at establishing transfer organizations in higher educational institutions since 2008<sup>4</sup>.

Owing to this, organizational units, which try to meet the requirements of tenders and contribute to the economic development of regions with their knowledge transfer functions, have been established at large universities and also at a few smaller colleges.

According to companies, knowledge and technology transfer processes should be separated. In addition, they do not regard the technology of a special field (e.g. technical or medical technology) and the knowledge flow related to it as technology transfers. They identify technology transfer with those supplementary services that accompany the knowledge transfer, that is, they consider it an administrative process, which is, however, indispensable for the successful implementation of knowledge transfer.

### **Knowledge centres**

A university knowledge centre concentrates exclusively on professional fields and research-development and it provides the professional and knowledge content of the transfer either explicitly or tacitly. Its task, therefore, is to create and have competence. So-called research centres, which solely concentrate on a single

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<sup>4</sup> Between 2008 and 2010, 16 higher educational institutions were granted subsidies through three tenders to develop technology transfer processes:

- TÁMOP 4.2.1-08/1 Developing tools and conditions to contribute to knowledge utilization and knowledge transfer
- TÁMOP 4.2.1-09/1 Supporting research and technology transfer services and improving research conditions at higher educational institutions
- TÁMOP 4.2.1.B-10/2 Improving the quality of higher education through the development of research-development-innovation-education

academic field, can be established within knowledge centres. Optimally, these can collaborate to solve certain development problems within a knowledge centre. Certain research teams, which work in fields of great importance for the university (strategic functions), have priorities and can serve as the basis on which a knowledge centre can be built (e.g. pharmaceutical research at a medical school). Other teams perform only supplementary functions; however, they can generate income (e.g. economic and return on investment research related to pharmaceutical research), so they should not be terminated, but they remain at a research team level.

### **Technology transfer centre**

A technology transfer centre is a background service organization, which ensures infrastructure, collects and offers the competences available at a university and administers tasks related to intellectual property rights. The task of a technology transfer centre is to understand what a company would like and translate these claims into the language of researchers; that is, it markets researchers' competences and the services developed on the basis of these.<sup>5</sup> It should also take the organizational interests of the university into consideration and represent them. (For example, it determines how much a given development or patent can be sold for.) The tasks of the technology transfer are as follows:

- interface function
- financing
- marketing function
- project generation and project management functions
- supporting ideas and talents
- handling of intellectual properties

In terms of communication, the third factor is internal communication besides image building and personal acquisition based on PR. The central task of the technology transfer centre is to determine and inform the staff about what competence they have within the university and what kind of intellectual properties they are allowed to convey to enterprises.

This raises the question whether technology transfer centres deteriorates the competitiveness of universities, because if several organizational levels can be found above a research team, it makes the operation significantly more expensive due to operational costs. According to estimates, this can result in a 35% price premium in Hungary. This is the reason why researchers very often undertake research commissions as heads of private companies or private entrepreneurs, leaving out their university and making bids lower than the university prices – causing ethical

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<sup>5</sup> A spin-off company should be defined as a separate notion. According to the Act on Innovation (Act CXXXIV of 2004 on Research-development and technological innovation.), a utilizable enterprise is a company which is established by a budgetary research centre and operated with the contribution of the centre to exploit business benefits of the intellectual properties produced in such a research centre. Therefore, the purpose of spin-off companies is to market given and concrete development results and services. On the other hand, spin-offs in Hungary fulfill technology transfer functions, and the reason for this is the fact that universities can obtain tender resources only for the establishment of spin-off companies.

and financing damage – while they use the infrastructure of their university. Handling of all these is an internal communication and regulation task and belongs to quality assurance. However, technology transfer centres are required because there should be an organization, which can take on the marketing and communication tasks and expenses of university research and services as well as the administration in order that researchers should meet just the professional expectations of clients.

If these are university level marketing activities, a further question arises whether it is necessary to run two marketing organizations simultaneously. Should a technology transfer centre as a marketing organization communicating with companies be separated from the university marketing organization? In Hungary, in many cases, centres are required not to reveal that they are university organizations. An argument against this separation is that according to enterprises, good reputation of universities is one of the main reasons why enterprises entrust universities with R&D projects. If a technology transfer centre proves not to be an integrated part of the university, the university is judged less valuable due to the lack of an R&D organization since it cannot present reference projects and the centre loses its secure university background (it does not appear in the market as an organization but as a single start-up enterprise) and the number of commissions for the centre decreases. These effects generate a negative self-generation process, which is unfavorable for both universities and centres and also causes uncertainty within the corporate sphere.

The solution can be the establishment of a strong university marketing or rather utilizing organization which can cope with the following tasks of a university: marketing, transfer (as utilizing knowledge), technostart (service for start-up and small-sized enterprises), technopark (production and infrastructure management) and cooperative (alumni and corporate relations) tasks.

### **Technology transfer on the Internet**

The websites of 16 technology transfer centres were analyzed in our research.<sup>6</sup> Over 80% of these works as independent websites and quite often they cannot be accessed from the university websites (*Figure 5*).

The greatest deficiency of the websites is that they lack almost every kind of marketing approach whereas it is these organizations which communicate with corporations. Every site includes the objectives of the organization (this is also a prerequisite for tenders); however, the objectives, which are just enumerated, are definitions copied from founder documents, which represent the interests of universities instead of those of target groups. Lists of objectives, which are almost always identical, are displayed on static pages of 56.25% of the websites. (e.g.):

- the activities of the centre should help the knowledge centres of the university to take part in as many industrial research as possible

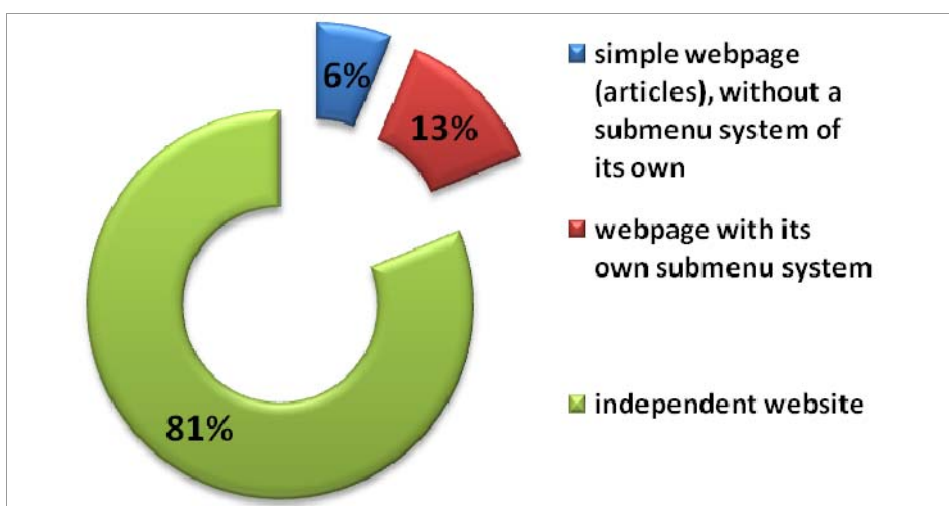
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<sup>6</sup> The websites of organizational units, which function as technology transfer centres established by those 16 higher educational institutions that won subsidies with the above-mentioned TÁMOP tenders between 2008 and 2010, were analyzed.

- the centre should increase the number of intellectual products created by the university
- R&D activities of regional enterprises should develop and their competitiveness should increase
- the number of start-up and spin-off companies should be increased
- the accumulated information and experience should be integrated in education whereby contributing to a better labour market potential of students
- *the intellectual properties created during the work of the centre's students, researchers and teachers financed with public money should be registered and utilized(!)*

**Figure 5**

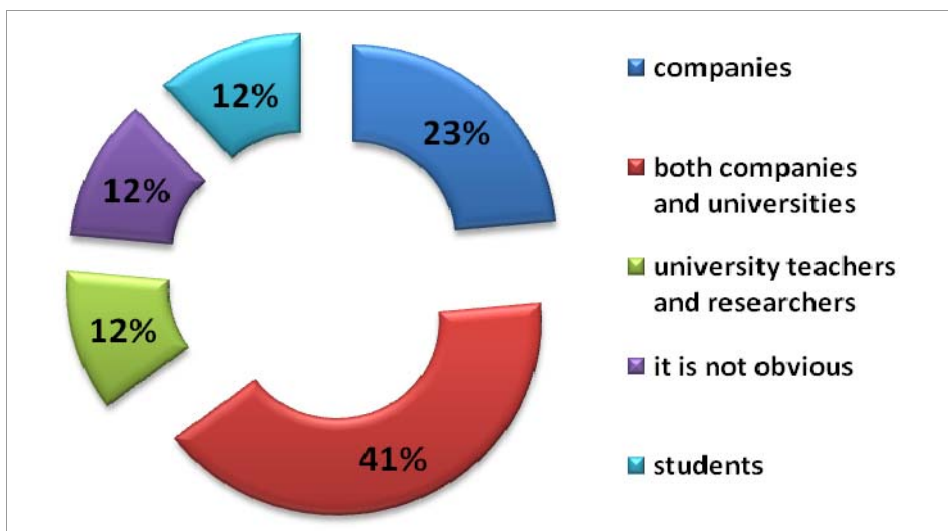
**Appearance of the analyzed websites compared to the main university websites**



The question is unavoidable: what is the purpose of the centres? Is it to meet tender requirements? To ensure extra work and extra income for the university staff, which cannot be financed from the university budget? To increase university receipts? To involve the university in the innovation processes and restore the prestige of university innovations? To increase the competitiveness of the region? Or to offer R&D&I services for companies, which they will be satisfied with, they will develop and due to this, the competitiveness of the region will also improve? The answer is simple: all of these are purposes. However, as profit-oriented companies in competitive markets do not communicate in their marketing approach to their customers that their primary aim is to maximize their profits or increase the dividends of the owners but they claim their purpose is to solve their customers' problems, centres should not set objectives to increase their own receipts in the messages of their external communication. This is also underpinned by the fact that according to the websites of centres, 64% of their target groups are companies. (Figure 6).

**Figure 6**

**Who is the target audience of the websites?**



The web tools of communication are represented by the traditional and almost out-of-date ones on the pages: e-mails and registration (without the functions of sending automated newsletters or offering downloadable brochures) (*Figure 7* and *Figure 8*).

**Figure 7**

**Communication tools used by websites to reach their target audience**

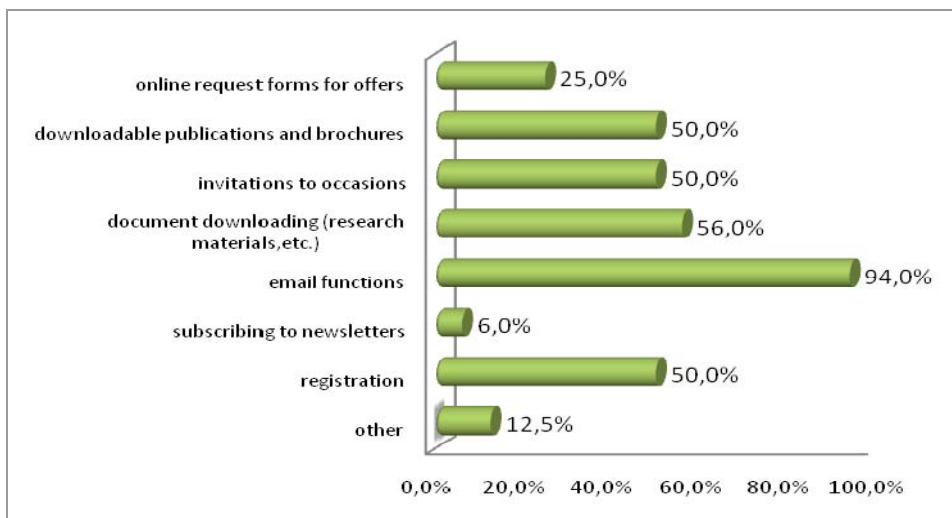
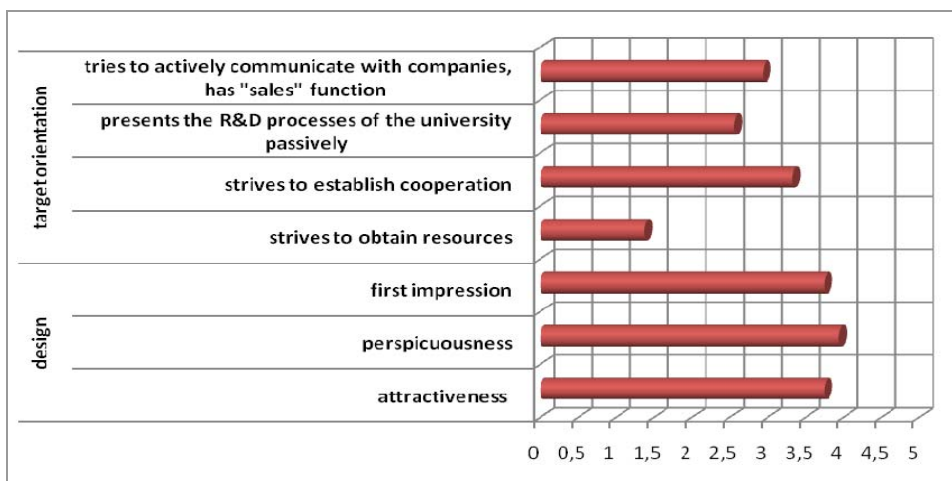


Figure 8

The overall impression of the analyzed website (on a scale of 1-5)



## CONCLUSIONS

In conclusion, technology transfer organizations at universities in Hungary are trying to make knowledge utilizable and transfer it to enterprises and the society. This role, however, is often distorted because universities have financing difficulties and the expenses of these organizations are transferred to operational costs. Universities have competences; however, university thinking still has not altered to become completely market oriented.

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## THE ROLE OF UNIVERSITIES IN DEVELOPMENT

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### **ABSTRACT**

*Innovations play a more and more important role in the economic development of each region. The success of the regions' developmental strategy depends in large part on resources and the geographic location of those resources within the region. Universities play a definitive role in regional development. The University of Pécs is one of the largest and most popular higher education institutions in Hungary. Over 32,000 students study at its ten faculties and its staff numbers more than 6,000. As reflected in the number of its faculties, the University embraces almost the full spectrum of higher education. It includes training programmes in law, health care, economics, natural sciences, humanities, technology, arts, pedagogy, and adult education. There are over 100 majors and specialties that preserve traditional forms of training while adapting to better suit current social and economic needs. The university, as a key participant in economic life and development, can help foster cooperation in the business sphere and assist local municipalities and the central government in regional development programmes. In my presentation I wish to introduce the role of the University of Pécs in the development of the Transdanubian Region and the ways it may join in regional development programmes through education, research, and scientific activity.*

Keywords: region, universities, companies, innovation, R&D

### **INTRODUCTION**

The role of human resources has become more important in today's knowledge-based society. The *new economic model* that fulfils and replaces the industrial-postindustrial economy and money economy is called *knowledge-based economy*. The most important driving force of economic growth and productivity in a knowledge-based economy is *knowledge*, which, as an intellectual capital, is primarily incorporated in technology and the human being. The term "knowledge-based economy" derives from discovering and acknowledging the effects that knowledge and technology have on *economic growth*. Production processes of the knowledge-based economy are based on the exploitation and distribution of information and knowledge. The knowledge-based economy is invariably a market economy and its most important coordination factor is the knowledge market. In the knowledge-based society, increase in welfare, performance and employment is influenced by the dynamic development of knowledge intensity and high technology. The first step of the alteration in the postindustrial economic model: Leaving its own medium, the modern economy renders *non-economic subsystems* (education, healthcare and society, etc.) parts of the economic subsystem. The second step of the alteration: Leaving its own medium, knowledge production occupies the *economy* that embraces almost everything;



therefore, the economy is now controlled by the knowledge market. The knowledge-based economy cannot exist without the knowledge-based society, and vice versa; furthermore, knowledge production, the knowledge-based economy and the knowledge-based society also act as one another's driving forces (Varga, 2011).

While completed knowledge was important in industrial societies previously – that is, the goal was to acquire life-long knowledge -, it has completely changed by these days. Nowadays knowledge is not a goal but means of integrating into society successfully. Since knowledge can become outdated, continuous life-long learning is necessary. Competitiveness of economies and the pace of their development are essentially influenced by the quantity and quality of human resources. Rédei (2007) draws the following conclusion in her study: the unceasing technological and technical development is dominant in the knowledge-driven economy, which requires labour force with new skills of application. Labour force is required to continuously acquire new skills for new technologies, which is implemented by lifelong learning. All kinds of learning are valuable since they not only convey professional knowledge but also teach people how they can acquire new knowledge and maintain their desire to update their knowledge. The issue of “how you should learn” can be used later to implement tasks offering new social and economic advantages. She thinks that every kind of knowledge - not only the one acquired in formal education - which people acquire during their lives should be considered to be valuable.

It is the universities which are key institutions of teaching, training and further training of human resources required in societies. The success of regional development strategies of a region depends to great extent on available resources and their locations in the region. The role of universities and colleges is crucial considering regional development. There are seven NUTS 2 regions in Hungary and one of them is the South Transdanubian Region, which comprises Baranya County, Tolna County and Somogy County. There are three higher education institutions in the South Transdanubian Region: the University of Pécs, the University of Kaposvár and the Pécs Episcopal College of Theology; and there are higher education institutions also in Szekszárd and Paks. However, it is only the University of Pécs (UP) that is among the largest and most popular universities of Hungary. In our study, we will try to answer the question whether universities as key actors of economy and economic development can contribute to the cooperation of the business sector and the competitive sphere in regional development programs and if they can how it is possible.

## **FUNCTION CHANGE OF UNIVERSITIES**

Universities have been playing an important role in the developments of regions, the creation and distribution of economic and social innovations since the Middle Ages. The first universities were established at the turn of the 12<sup>th</sup> and 13<sup>th</sup> centuries (Paris and Bologna). During that time, the majority of universities operated in the middle regions of the Italian Peninsula. The first universities in Central Europe were founded slightly later, around the middle of the 14<sup>th</sup> century – somewhat falling behind Western Europe – in Prague in 1348, in Krakow in 1364, in Vienna in 1365 and in Pécs in 1367. At the beginning of the 16<sup>th</sup> century, there were approximately 70 universities, the

majority of which could be found in areas belonging to today's France, Italy, Germany and Spain. "Regional relationships between universities were restricted to only finance. The institutions supported by town capital played important roles in disseminating humanistic culture beyond regional borders. Their connections with economy were contingent, even though German universities contributed to the development of the printing industry to a great extent" (Horváth, 1994).

The 17<sup>th</sup> and 18<sup>th</sup> centuries saw significant changes, which resulted in the breakdown of the existing order and the transformation of the economic and political system. Modern civil states with rational rule of law and bureaucratic organizations developed; furthermore, the church and the state became separated. During this period, the centralizing states consciously strove to strengthen the state influence on universities (financing, the right to establish and the right to appoint) and weaken the regional connections. This was successful in France and in Prussia; however, universities failed to be made completely dependent of states in Great Britain and in Switzerland. In Hungary, the autonomy of universities was a question under constant debate in the Era of Dualism. The independence of universities in personal and economic matters became more and more restricted by the 1910s due to the intensive centralization effort of states. In the era after World War II, the centralization effort intensified, so a great proportion of the teaching and research concentrated in a small number of institutions. Central governments tried to control universities with direct methods. Mass education changed the elite training in West Europe from the beginning of the 1960s and in Hungary from the beginning of the 1990s. Universities more often considered the demands of the society and economy in the course of their trainings. A strong decentralization process started, which resulted in a diversified system of tertiary education institutions. The number of universities and colleges increased, the training offers widened and the institutions strove to take regional requirements into account when they were established. *The relationship between universities and their environment goes back centuries. It is primarily based on economic interests and the intensity of the relationships varies from region to region. My experience is that different types of cooperation have been more frequently formed between higher education institutions and economic actors of regions in the past years.* What can be the reason for this? It is partly the fact that the functions of universities have refined and widened. Today, the scope of their activities does not only involve the classic basic functions such as teaching and research, but it has also changed and has been supplemented with a third, extremely important function, the social engagement. This third function includes every institutionalized relationship, which was established between universities and actors of economy and social life, which cannot be restricted simply to the economic distribution of knowledge elements. *In conclusion, nowadays university activities are said to include "consigning new competences from trainings based on research to economic actors, possessing the new technology knowledge (patents and other intellectual rights), the utilization of this knowledge within universities (establishing university spin-off companies) and outside them (companies and public institutions), furthermore, contribution to development policies (including participation in consultancy bodies), social engagement in the immediate regions of universities, meeting local requirements and operating as the intellectual centres of the regional labour force market and local societies"* (Farkas, 2009).

Universities have to adapt to changing requirements and conditions since they are expected to persist in the international competition. Consequently, the number of entrepreneurial universities, besides the traditional service universities, has been on the rise recently. Entrepreneurial universities were first established in the 1990s. This is the era when tertiary education transformed to become mass education and the competition for students and resources started. The Government could no longer finance the expanded higher educational sphere effectively. Universities recognized that they should supplement their income provided by the Government from other sources. They strove to integrate into their social and economic environment. Owing to these changes, there has been an approach between the business sector and universities. Service universities not only offer traditional training forms but also vocational trainings and postgraduate programs flexibly adapting to the demands of external customers. Planning and organizing research and contracting are coordinated centrally, and units and researchers identify their places within this system. Usability and profitability are of great importance when research, development and innovation themes are being specified. The supervising power is shifted to the management level – it is not only the professorial bodies that can make decisions. A more radical type of the service university is the entrepreneurial university. The entrepreneurial university establishes strong and professional management and creates so-called developmental peripheries (industrial, business and technological parks), its finance is diversified, its income derives from different sources (secondary and tertiary financing sources are of great importance), it has strong and stimulated academic background, academic and business interests prevail together, traditional values persist within the entrepreneurial university and the entire university is influenced by entrepreneurial culture (Hrubos, 2004).

The importance of university engagement can be claimed to have been modified several times during history. Turning points are represented by so-called academic revolutions, which had some consequences. During the first revolution, the ancient teaching tasks of universities were complemented with scientific research and the result of the second revolution was that the increasing number of tasks required expanding social responsibility so that the economic and social utilization of tasks can be implemented. Universities, however, are expected to be able to handle the crisis due to the continuously increasing number of students and the intensifying financing difficulties if they have themselves accepted by the society of their countries and local environments, they conduct activities which are considered to be useful, they convey realistic knowledge and produce research results that can be applied in practice. In order to be able to adjust to the changes flexibly, higher education institutions have to adopt a new approach and they have to find their new social functions (Mezei, 2008).

### **RELATIONSHIP BETWEEN UNIVERSITIES AND THE CORPORATE SPHERE**

Basic conditions of international competitiveness can be established by the quality of regional and local resources, which is largely supported by knowledge and services related to it. “*Relationships and cooperation between actors of the innovation system in*

*knowledge-based societies are indispensable in the process of obtaining, accumulating and disseminating knowledge. Therefore, universities play an increasingly larger role in the social and economic development through the expansion and dissemination of academic knowledge*” (Inzelt, 2004). This statement exemplifies that local universities have had crucial roles in the evolution of several high technology regions (Silicon Valley and regions around Cambridge and Boston). In Hungary, in contrast with these, innovation centres established in the past decades or still being formed, which are heavily concentrated territorially (Budapest, Debrecen, Szeged, Pécs and Veszprém), were founded as a result of determined and purposeful economic policy intervention.

Companies and universities could cooperate successfully on mutual benefit platform if there were continual discussions between them, where the expectations, demands and opportunities could be harmonized better. It should be clarified what expectations of economic actors have in connection with universities, and which of these expectations universities can meet. It can be concluded that today’s universities mostly collaborate with foreign-owned companies. Considering the data of the Central Statistical Office (CSO) of 2005, it could be observed that there were 1,566 research centres whereas the number of research and development centres of enterprises was 749. The R+D expenditure of foreign-owned companies made up HUF 65.5bn in 2005. On the basis of the headcount data, it can be concluded that 54% of the 7,393 R+D employees registered at corporate research centres worked for foreign-owned companies (CSO, 2006).

When the field of research and development is studied, future university researchers and the disciplinary distribution of their activities should be analyzed as well. Universities conduct research and development activities through the productive activities implemented in the course of doctoral trainings. Therefore, it is the doctoral trainings that ensure the basis of future research and productive human resources of universities.

It is a worthwhile task to examine what kind of relationship exists between participants of the economic sphere and universities. *Two dominant types of connection exist between companies and universities: one of them is specialists’ training and their further training and the other one is the research – development activity.* Varga (2000) claims that university knowledge transfer mechanisms can be divided into four categories:

- conveying knowledge flow
- knowledge transfer due to the relationships (formal and informal) and networks of university experts and their corporate counterparts
- knowledge diffusion through formalized business connections (spin-off companies)
- knowledge transfer through/by physical facilities (libraries and scientific laboratories) of universities which are used by industrial companies

*Analyzing the connections between universities and the corporate sphere* is of great importance considering what added value the knowledge acquired at universities – either during graduate or postgraduate training programs – and on corporate level will represent in the future lives of the people who have obtained degrees. If their knowledge is up-to-date – which can be presupposed in case of universities with active corporate connections – their degrees and knowledge can be considered more valuable from

the viewpoint of finding employment in the economic corporate sphere. Therefore, universities with active and continuous corporate connections can ensure further labour market opportunities for their students.

Studies investigating collaborations between universities and companies pay special attention to the various channels of knowledge transfer (e.g. mutual publications, involving corporate experts into university trainings, companies established by teachers regularly hired as experts and short-term or long-term research commissions for universities). Cohen emphasizes the importance of formal public channels (academic publications, workshops and conferences), whereas others enhance the significance of informal relationships.

*One of the essential connection forms between actors of economy and universities is when universities strive to take the demands of the economic sphere into consideration in the development of their training offers.* Qualified labour force and life-long learning play a crucial role in today's knowledge-based society. Highly qualified labour force means a significant competitive advantage, whereas narrow and profession-specific knowledge is no longer sufficient for maintaining long-term competitiveness. The demands of economic actors are diverse; however, it can be concluded that well qualified specialists are needed.

*The other important connection between economic actors and universities evolves during research and development collaborations.* In Hungary, there are several examples of collaborations between companies and universities; however, it is the small and medium-sized enterprises which primarily wish to find opportunity for collaboration. Large companies are mostly not interested in applied research but usually want to use a service since they strive to achieve high return on low capital investment. *This type of cooperation has several advantages for both partners:* universities are capable of expanding their limited financial resources, talented students can come into contact with the corporate sphere and companies can gain competitive advantage and make profit as a result of their cooperation. The main benefit of the R&D activities conducted at universities is that the latest scientific results can be integrated into teaching directly, they can become essential parts of the study material and they are published. On the other hand, several problems might arise during the collaboration. *One of the most significant problems is that corporations support research because they wish to increase both their profit and their competitiveness.* Since basic research can take a long time and their possible outcome is uncertain and risky, companies direct universities towards applied and developmental research. *The other crucial problem is the issue of patents.* If researchers' new scientific results are patented by corporations, researchers do not receive anything from the profit, they receive the payment recorded in their contract. Consequently, researchers might concentrate on technological developments and consultancy instead of basic research that can be more profound and longer and has uncertain results. In the United States, it was already realized in the 80s that supporting connections between universities and corporations and encouraging basic research were necessary. For this purpose, patent acts were modified significantly. Universities have disposal of the intellectual properties created during research financed by governments. Universities can make use of the intellectual property commercially

and they have to distribute the royalty from patenting an invention among the inventors, who are generally teachers, researchers and spin-off companies hired by the given university.

In Hungary, a new program “The applied research and development programme” was launched in 1995. That was the first engagement of the state sphere to support the evolution of systems of connections between corporations and universities. In 1999, a program assisting the establishment of Cooperation Research Centres (CRC) was launched with the purpose of strengthening the relationships of higher educational institutions, research institutes and companies by founding research consortiums. In the framework of the CRC program, five centres were established in 2001: two in Budapest and one in Miskolc, Pécs and Veszprém. For the sake of reforming the financing and regulation background of innovations, the Act on Research and Technological Innovation Fund was passed in 2003 to regulate financial issues. In 2004, a new act on research-development and technological innovation was passed to regulate the general framework of R&D&I activities; furthermore, the Government’s medium-term (2007-2013) strategy for science, technology and innovation was also accepted. It was in 2004 that the National Research and Technology Office first announced a tender whose objective was to establish Regional Knowledge Centres, which conduct outstanding research – development and innovation activities, cooperate with representatives of the corporate sphere and encourage the technological and economic development of the regions, improving the competitiveness of the country.

For example in Hungary, a new knowledge centre, which will also satisfy international standards, is to be established in the Zsámbék Basin in the framework of the Talentis Program. The economic, innovative and scientific centre, which would be similar to the Californian Silicon Valley and the European Grand Lyon and Sophia Antipolis, would concentrate the financial and intellectual resources in one place. The government, which joins the project as the owner, acts as a catalyst, which might accelerate the creation of a knowledge region. The three main pillars of the Talentis Program are: research and development, education and technology, which cooperate beneficially with the development of the infrastructure and improvement of life quality. One of the largest logistics centres, the Agrogate Hungary, has been built also in the Zsámbék Basin. The first environmental conscious and suburban industrial park and innovation centre, the Talentis Business Park and Innovation Centre involving micro-, small and medium-sized enterprise, also operates here. Several development projects that have been implemented within the Program satisfy the ever-increasing requirements of the local community: for example, the M1 motorway and its expansion and the renovated school, which has been expanded with a library, a restaurant and a computer laboratory. The expansion of the intersection in Herceghalom, the establishment of settlement/regional sewage treatment works, the new health house and the renovation of the kindergarten are further examples of the development projects. All these investments and developments result in a regional development program, which might be a role model in the Carpathian Basin (*Fellegi*, 2011).

The collaboration of the state sphere, the corporate sphere and universities is required to make the economy of a country competitive. The Triple Helix, a model devised by Etzkowitz and Leydesdorff, was created during the analysis of the subsystems of the knowledge-based economy in the era following World War II. On the basis of their own observations, Etzkowitz and Leydesdorff found that three institution types were of great importance considering the examination of the evolution of knowledge (*Inzelt, 2004*):

- universities as knowledge producing and knowledge disseminating organizations (according to the model, academic research institutions also belong to this type),
- governmental research organizations as organizations conducting controlled basic research and applied research and
- innovation enterprises.

The tightness and intensity of the collaboration of the three institution types determine the innovation system of a given country, region or sector. The Triple Helix model is an analyzing and normative model, which can help to describe what relationship the government has with the corporate sphere and representatives of universities. The essential question for countries lagging behind is not how intensive the co-movement in accordance with the triple helix is but if there are any connections between the three institutions. The model includes three main elements:

1. “In a knowledge-based society, universities have a more distinguished role in the innovation system than governments or companies. If the government has leadership, there will be limited sources for the support of innovation activities. If the government does not take part in the innovation processes, there will be deficiency in the necessary regulation and support.
2. The connection between the three main institutional spheres tends to move towards a cooperative connection. Innovation policy does not manifest itself in regulations deriving from the government unilaterally, but instead, the government, the industry and universities work together to create an appropriate regulatory system.
3. All three actors fulfill their traditional roles; however, they take actions in the areas of the other two actors. For example, universities can take over the lead from the government in case of certain development projects. Universities, which provide human resources and knowledge of increasingly better quality, have evolved to be influential social and economic actors” (*Dzsisab and Etzkowitz, 2008*).

If Triple Helix is considered to be a normative model, the prerequisite of the circulation of people, ideas and innovation is the proper adaptation of the model to different national and cultural environments. The first step of this is to ensure the opportunity for the relevant actors to discuss honestly and overtly their strengths, weaknesses and factors hindering their cooperation. The second step is to identify the opportunities as well as the limits and obstacles to be overcome as precisely as possible. The third step is to elaborate an action plan which adapts the organizational models or discovers new ones (*Dzsisab and Etzkowitz, 2008*).

## **RESEARCH – DEVELOPMENT IN DOCTORAL TRAINING – SOUTH TRANSDANUBIAN REGION**

This chapter examines how new generations of researchers are ensured in the South Transdanubian Region. The “Bologna Seminar” on Doctoral Programmes for the European Knowledge Society provided the first major forum to discuss the new Action Line in the Bologna Process entitled “European Higher Education Area (EHEA) and the European Research Area (ERA) – Two Pillars of the Knowledge-based Society”. The main outcome of the Salzburg Seminar “dialogue” on the third cycle was to reach agreement on the establishment of a set of “*ten basic principles*” that should underpin further considerations of the key role of doctoral programmes and research training in the Bologna Process. Further work and analysis was required in order to encompass fully the great variety and experience of doctoral programmes and research training schemes, including both the opportunities and barriers, and to develop the “ten basic principles” into a set of recommendations (*Christensen, 2005*).

The “ten basic principles” are presented together with the main points discussed in both the Salzburg plenary and working group sessions. These points identify the key challenges that have to be faced in seeking to achieve consensus-building on future recommendations (*Christensen, 2005*):

1. The core component of doctoral training is the advancement of knowledge through original research. At the same time it is recognised that doctoral training must increasingly meet the needs of an employment market that is wider than academia.
2. Embedding in institutional strategies and policies: universities as institutions need to assume responsibility for ensuring that the doctoral programmes and research training they offer are designed to meet new challenges and include appropriate professional career development opportunities.
3. The importance of diversity: the rich diversity of doctoral programmes in Europe – including joint doctorates – is a strength which has to be underpinned by quality and sound practice.
4. Doctoral candidates as early stage researchers: should be recognised as professionals – with commensurate rights - who make a key contribution to the creation of new knowledge.
5. The crucial role of supervision and assessment: in respect of individual doctoral candidates, arrangements for supervision and assessment should be based on a transparent contractual framework of shared responsibilities between doctoral candidates, supervisors and the institution (and where appropriate including other partners).
6. Achieving critical mass: Doctoral programmes should seek to achieve critical mass and should draw on different types of innovative practice being introduced in universities across Europe, bearing in mind that different solutions may be appropriate to different contexts and in particular across larger and smaller European countries. These range from graduate schools in major universities to international, national and regional collaboration between universities.



7. Duration: doctoral programmes should operate within appropriate time duration (three to four years full-time as a rule).
8. The promotion of innovative structures: to meet the challenge of interdisciplinary training and the development of transferable skills.
9. Increasing mobility: Doctoral programmes should seek to offer geographical as well as interdisciplinary and intersectoral mobility and international collaboration within an integrated framework of cooperation between universities and other partners.
10. Ensuring appropriate funding: the development of quality doctoral programmes and the successful completion by doctoral candidates requires appropriate and sustainable funding.

The Salzburg Seminar participants recommended to the Bologna Follow-Up Group (BFUG):

- that the above ten basic principles provide the framework for further work on the third cycle, and consequently are fed into the drafting of the Bergen Communiqué;
- that the Ministers in Bergen then call on the European University Association through its members to prepare a report under the responsibility of BFUG on the further development of these principles to be presented to Ministers in 2007 (*Christensen, 2005*).

Essential conditions for sustainable development are the continuous trainings of researcher staffs of appropriate structure, quality and quantity as well as active research and productive activities, all of which represent added values in the society. A significant part of the research and development conducted at universities is implemented in the research and productive projects of doctoral trainings. That is why it is important to analyze the constitution of doctoral trainings in the South Transdanubian Region.

The number of students taking part in doctoral trainings in Hungary is shown in the *Table 1*.

**Table 1**

**Participation in Ph.D. and DLA trainings**

<b>Number of students in Ph.D. and DLA trainings</b>	<b>7167</b>
new entrants	2233
students supported by the Government	3050
students in their final year	2076
foreigners	524
women	3488

Source: *Szontágh, 2010*

The following table, with the South Transdanubian Region in the focus, shows the number of students in the region participating in Ph.D. and DLA trainings at the University of Kaposvár and the University of Pécs compared to the total number of

students in higher education. On the basis of this, it can be concluded that the number of students in Ph.D. and DLA trainings is quite high compared to the total number of students in higher education (361 347 students) (Table 2).

**Table 2**

**Participation in Ph.D. and DLA trainings in the South Transdanubian Region**

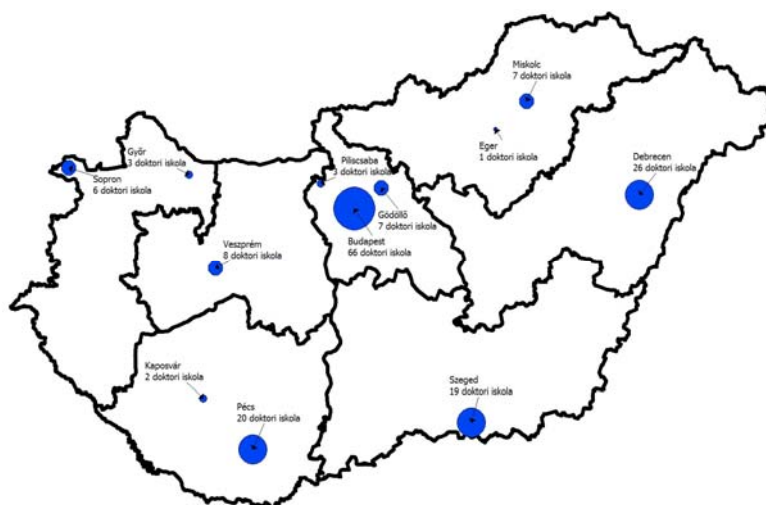
Name of the institution	Total number of students	Number of students in Ph.D. and DLA trainings
Kaposvár University	52	3 244
University of Pécs	859	29 032

Source: *Szontágh*, 2010

There are 167 accredited doctoral schools at 27 universities in 7 regions of Hungary in 2011. The regional distribution of their locations is uneven (Figure 1). There is one university in most of the regions whereas 18 universities can be found in the Central Hungarian Region and within that, in Budapest and in its immediate surroundings. Hungary is basically Budapest centred, which means that the economic and demographic centre of the country is the capital. In the Figure 1, the centralized spatial distribution can be clearly seen. Two universities, the University of Kaposvár and the University of Pécs, have doctoral schools in the South Transdanubian Region. Two doctoral schools are accredited at the University of Kaposvár and 20 accredited doctoral schools work at the University of Pécs.

**Figure 1**

**Regional distribution of doctoral schools with a valid accreditation certificate in Hungary, 2011**



Source: On the basis of *HAC* (Hungarian Accreditation Committee) statistics

When future researchers of universities are analyzed, disciplinary distribution among doctoral schools is worth examining in order that training offers and opportunities of regional research cooperation in the South Transdanubian Region can be understood precisely.

The *Table 3* shows what opportunities the University of Kaposvár and the University of Pécs can provide for actors of the region.

**Table 3**

**Disciplinary distribution among doctoral schools with a valid accreditation certificate in 2011, in the South Transdanubian Region**

<b>Institution</b>	<b>Name</b>	<b>Discipline</b>
<b>Kaposvár University KU</b>	Doctoral School of Animal Studies	animal studies
	Doctoral School for Management and Business Administration	management and business studies
<b>The University of Pécs UP</b>	Doctoral School of Legal Studies	legal studies
	Doctoral School of Chemistry	chemistry
	Doctoral School of Pharmacology	pharmacology
	Doctoral School of Interdisciplinary Medical Sciences	theoretical medical studies
	Doctoral School of Clinical Medical Studies	clinical medical studies
	Doctoral School of Theoretical Medical Studies	theoretical medical studies
	Doctoral School of Linguistic Studies	linguistics
	Interdisciplinary Doctoral School	ethnography and cultural anthropology, political studies, history
	Doctoral School of Literature Studies	literature studies
	Doctoral School of Psychology	psychology studies
	Doctoral School of Management	management and business studies
	Doctoral School of Regional Policy and Economics	management and business studies, economic studies, regional studies
	Faculty of Arts Doctoral School of the University of Pécs	arts, music
	Doctoral School of Earth Sciences	earth sciences
	Doctoral School of Biology	biology
	Doctoral School of Philosophy	philosophy
	Breuer Marcell Doctoral School	architecture, civil engineering studies
	Doctoral School of the Faculty of Health Studies	health studies
Doctoral School of Physics	physics	
Doctoral School of Education and Pedagogy Studies	pedagogy studies	

Source: On the basis of *MAB statistics*, 2011

In conclusion, the South Transdanubian Region with its 22 doctoral schools to ensure future researchers is the 3<sup>rd</sup> considering the figures of doctoral schools. Furthermore, the analysis of their training offers, it can be seen in the above tables and diagrams that these schools conduct research and productive activities in several disciplines, which might involve opportunities for significant research cooperation with the industry.

### **RELATIONSHIP BETWEEN THE SOUTH-TRANSDANUBIAN REGION AND THE UNIVERSITY**

Owing to its geographical location, the South Transdanubian Region is the southern gate of Hungary. It is an important factor in foreign affairs as it has opportunity to join the cooperation of south and south-west countries through Croatia towards the Adriatic. Despite its varied natural features, pleasant climate and outstanding tourist features, Baranya County is considered to be one of the underdeveloped counties both in national and international comparisons. The deteriorating position of the county can be related to its economic structure. The South Transdanubian Region, to which the county belongs, is above the national average in some traditional production branch areas such as agriculture, game keeping, forestry and fishery, furthermore, in certain industrial branch areas such as electricity, gas, steam and water supply. Industry and within that the processing industry – even though it is the second most significant sector in the region – plays a less significant role in the achievement of the region than what is typical nationally. The performance of the service sector of the region was more considerable than that of the country in the fields of public administration, defence, education, healthcare, social work services, accommodation and catering services. The R&D activities of the region are less significant than those of more developed regions (CSO, 2006).

At the University of Pécs, there are several research centres, which have been explored and analyzed. Consequently, the recommendable research and service portfolio of the university is available for companies. The market-oriented research activity is intensifying, that is why the South Transdanubian Cooperation Research Centre has been established. Its task is to convey interdisciplinary research in the fields of natural sciences and technical studies – laser, biomechanics, molecular biology, cell biology and informatics - to the economic sphere. The Mediopolisz Regional University Knowledge Centre, which conducts research in the fields of drug development and drug production in cooperation with pharmaceutical companies, has been operating successfully. The Pécs Health Science Innovation Centre will be established with the cooperation of the University of Pécs, the Pécs Innovation and Technology Development Centre and local biotechnological enterprises in the near future in the fields of life sciences and medical biotechnological research, which traditionally have strong innovation potentials. This can be the most important research infrastructure development of the past years. The main purpose of the centre is to connect enterprises, market-based product development and the research sphere serving the orders of manufacturers

and distributors and involving the enterprises of Biotechnological Innovation Cluster from the fields of medical biotechnology, pharmacology, nutrition studies, and development of implants, instruments and tools. In consequence of these facts, the university sphere can be considered to be the largest potential knowledge and value producer in the South Transdanubian Region.

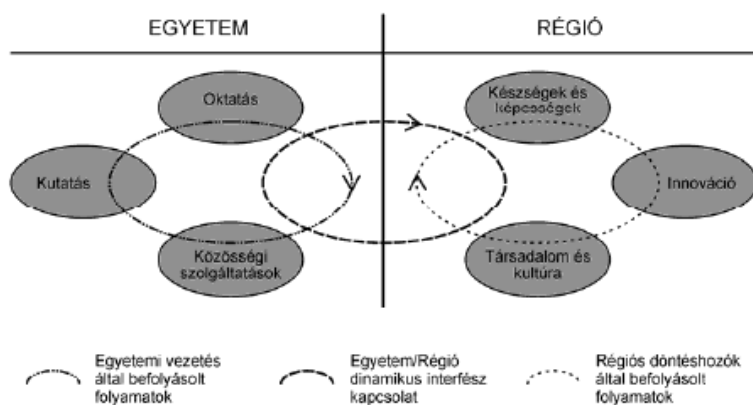
## CONCLUSION

Today cooperation between universities and the corporate sphere is contingent. The reason for this is, on the one hand, the weakness of the business sphere and, on the other hand, the lack of necessary openness of universities. Limited financial resources and the lack of regulations also render the situation more difficult. When relationships between universities and companies are analyzed, it is revealed that mostly multinational and foreign owned companies wish to establish cooperation with universities. Besides this, it is also interesting that the majority of the commissions are aimed at using the services provided by universities and solving technical and professional problems to be resolved fast.

*Godard* (1999) created the model of the interference of the university and the region (*Figure 2*), in which he concluded that a more significant contribution of universities to the regional development was that they were able to establish, coordinate and harmonize connections between certain processes.

**Figure 2**

### A model of the interference between the university and the region



Source: *Godard*, 1999, 8. p.

(Egyetem = University, Oktatás = Teaching, Kutatás = Research, Közösségi szolgáltatások = Community services, Régió = Region, Készségek és képességek = Skills and capabilities, Innováció = Innovation, Társadalom és kultúra = Society and culture, Egyetemi vezetés által befolyásolt folyamatok = Processes influenced by the university management, Egyetem / Régió dinamikus interfész kapcsolat = University / Region dynamic interface connection, Régiós döntéshozók által befolyásolt folyamatok = Processes influenced by regional decision makers)

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## HOW ARE EDUCATION AND RESEARCH AFFECTED BY REGIONAL DEVELOPMENT?

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### **ABSTRACT**

*This article will discuss how education activity is combined with research in a transition period. The preliminary point of thinking is that the European Higher Education Area (EHEA) and European Research Area (ERA) are two pillars of the knowledge driven society, yet both of them are undergoing a troubled transition period. The manufacturing industry in Hungary has undergone restructuring. In consequence of this, the main sectors have begun operating by high added value activities. The relocation of industry and rapid development of international services in a low tax zone has raised demand for internationally experienced skill sources. Why is domestic education unable to feed this demand? How can national research and education be integrated more usefully? With the creation of a permeable border, both the transnational economy and the national experience were contaminated. Cross-border mobility is one element of internationalization. The author will raise some points related to the Hungarian situation on the basis of the "Salzburg Principles" for doctoral programmes. The main topic of this paper is how spatial restructuring has linked education output and technological relay. The presentation closes with some comparative recommendations on the trend experience. One such recommendation would be to integrate education and industry. This would provide more complementary skills and skilled workers who could in turn facilitate the growth of an integrated training and business strategy that would provide funds for both education and research in relevant fields. European and national funding rank the strategically and regionally operative priorities of development support from the top down, but project collaboration should be from the bottom up. There is a critical discrepancy between available funding and institutional and regional demand. The mutual benefit platform is missing.*

Keywords: transition, human resources, relocation, mobility

### **JOINING TO MAJOR EUROPEAN R & D NETWORKS**

Regions with strong knowledge base, complex research & development and innovation (RDI) capabilities enjoy comparative, and competitive position in the global competition. Due to the good accessibility, the low transport costs, the western border area of Hungary was highly impacted by *relocation of firms*. In the *local bargains* among the foreign investors, local authority and autochthon population in most cases were unbalanced. Most of them run for short profit, survival and the long-term strategy were developed a decade later.

Government has been taken more emphasis on strengthening regional capabilities in order to enhance their competitiveness and to attract the benefits of globalization and other economic processes in a broader part of the economy. As



we have learned from the *trendchart* report of innovation, the central effort is not enough. Actually this report of research & development in 2002 call the attention to new actors, a different strategy, namely the Lisbon dream - 3% of GDP for RD-should be not expected from central found, even more from the business sides (Rédei, 2007). So it based on a divided responsibility, corporate new actors, and formulates a different mutual benefit platform. This *double side pressure (central and business)* was felt also in the most advanced economies, while emerging countries were facing an even more serious challenge. This latter group of countries – Hungary among them – tried to launch policies and support programs in accordance with international good practices not only to enhance global competitiveness of certain regions but also to linkup local economies to the global environment (Inzelt, 2003). The distribution of winners and losers regions point out there is different capability. Hungary had double task; should join to global market and to go ahead on the inexperienced paths, transition from socialism to capitalism.

In the case of research was transition as well. Hungary had a centralized expenditure. Almost two-thirds of RDI expenditures and personnel are linked with the state effort; there was *slight contact by market demand*. This means that some regions of Hungary have a poor performance in this field which means.<sup>1</sup> At this time the key question was how to take the time on your side? First, how to reach a better position and how to keep it?

Hungary joined to the existing research framework programs, like COST, EUREKA in 1991, our OECD membership and Frascati manual was also published, Bologna process has started in 1996; which was highly contribute to development of network. Hungary, after Ireland, from 2002 was pioneer to introduce a reduced tax for SMEs in research activity usage. But there was a lack of research management experiences, network orientation.

At the end of 90's the knowledge based society was knocking on our “door”, but the driven was postponed it. The foreign production needed the eligible human resources; it was absorbed in a short period. The recruitment started directly from the universities in 1993, it was the opening of universities bourses. The two main pillars of HR development, education and research, became driving factor after 2006 by implementation of Bologna process (Rédei, 2002).

Hungary situated at geographical crossroads and at this time the economy was fairly internationalized. The knowledge driven process was opened by programs of Regional University Knowledge Centres (RUKCs), it tried not only to strengthen regional RDI activities but also to *improve university industry collaboration for better knowledge utilization*. The goals were concentrated around to polish their attraction or avoid the mass education on a decreasing level. The interactions among the universities are still on early level, no cross lecturing, the loss of capacity in

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<sup>1</sup> In order to improve this situation Hungary has launched a number of programs in the past decade to improve the regional development process. In 1993 PECO framework project was announced and more than 12 thousand applications were sent to Brussels. The applications included several ideas and institutional description from Central Eastern European countries, by team profile. So the research networking in CEE started to be mapped.

Academy more concentrated on universities. The academic research institutes are not belonging to universities, which is a European regularity.

In the literature commonly used – categorization of networks is offered by Fischer (2002), differentiating five types of collaborations based on their horizontal or vertical character:

- buyer’s network,
- supplier’s network,
- production network,
- technology network, and
- research and development network.

To talk about the spatial networks is important to fix the working understanding of topic. The working definition is based on to create and stating their intention for a *long-lasting horizontal relationships among independent actors from the business and scientific fields with the aim to enhance the position and knowledge base of the partners through common research and development and innovation activities* (Hagedoorn, 2002; Kreis-Hoyer and Grunberg, 2002). In Hungary all kind of Fischer typology is operated. Finally, nowadays Hungary is not only formally but even more actively member of these networks.

## **TRANSITION AND GEOPOLITICAL ROLL**

The *transition* is a time consuming process, which includes stock and flow elements. Stock like political switch, which is a declaration, building institutional background and take in force. Some other elements of transition were flow types, like economic transition, from central planning to market ones or ownership from state to private. The most time consuming process is the shift of value, the change of mind.

The *re-orientation* in economy was the main stream. Re-orientation means to lose the Russian partners in economic relations, and temporary loss of infrastructural lines towards east. Instead of that the European market became was extended. The story has begun in 1983 at the initiatives visit of World Bank in Hungary, in 1986 the big 6 was established the representative agencies in Budapest, in 1989 fall of Iron Curtain and economical and military dependence from Soviets. We are talking here about gain of process, but at that time Hungary was surrounded by several conflicted situation, collapse of Soviets, Balkan civil war, division of Checks and Slovaks, dependence of ex-Yugo countries. So meanwhile in Western Europe the *unification* was going on, in East the *disintegration*. In unification to forward the uniformities was challenging.

## **MOBILITY AND HUMAN CAPITAL**

When in your home country there is no need for your skill, then you will *under-invest in human capital*. By permeable border it became clear the human resources make a value, started the foreign study, and early carrier development. Most of the Hungarian family made effort to send their kids in a better school, or even to study abroad. The ratio of private investment in education has reached 2% of the total

household income. From the transition period in Hungary, *optimizing individuals* became an important issue, although in Western Europe an outflow was expected.

Visible raising trend of *foreign study*, mostly on family investment, points out to the understanding of global selections. At same time, Hungary became a host country, especially for ethnics and Chinese. Both of them, a large scale institutional development were established. Systematic promotions are going on to recruit more international students; from China-natural sciences, Arab countries–technical, Nordic countries and Cyprus-medical, Germany, Austria-music, or dentist study. High proportion of low paid countries students, after finishing their study at Hungary, wants to settle down here.

As it was verified several cases touched upon the international business, the human resources and development have strong relation. The skill is a valid ticket for migration. By permeable border the highly skilled persons were the first who moved to abroad in well infrastructure centres. e.g. bio and genetic technology. At the same time the foreign development created at home an international climate for highly skilled persons, so we could temporary plug our best and brightest human resources in. In the first period, an *internal brain drain* became reality, later on for some ones global carriers were realized in abroad.

The international mobility of professionals and graduates is one of the most dynamic transnational types of movements. And this is the most effective way of the human development. The *global competition for talent, the expansion of the knowledge economy extended the need*. It is also well established that migrants move with one set of aspirations that may be altered by the experience of mobility. Nevertheless, the importance of various micro-level factors in sustaining mobility as a dynamic social process is rarely acknowledged in the literature.

There is contrast the original social interest behind mobility with the interests that emerge during the experience of professionals' and graduates' living abroad. I argue that even as they attach meaning to the experience of migration, the interests underpinning their mobility change. Their perception and continuous evaluation of their own labor market and social position at destination is the most influential factor that adds dynamism to the social process of mobility. Thus the original *drivers of change become changed drivers* of mobility, defining whether the mover settles, returns or pursues further migration in a global city (Csedo, 2007). The migration process like research activity is operating better in centres than in peripheries. There is a motivation to go to the centres of education, research or residence.

*Circular mobility, many times to return to the country*, is one of the main observed forms of eastern European labor migration (Illés, Kincses and Rédei, 2010). The results from different studies and surveys indicate that there is an increase in the current migration flows and those new types of migration (such as educational and seasonal) are increasingly coming to the fore. Migration surveys show that the main reason for wanting to leave is to be found in the low wage levels and standard of living in Hungary. The circular migration sum up several experience and by that contributed to make a better founded migratory decision. In the case of expatriated have a high importance, who are enrolled in step a new country?

What kinds of knowledge might migrants transfer? Is there any evidence that global talent can boost a regional knowledge economy? Is there any evidence that

policies can significantly shape skilled migration flows and what other effects might they have? Given the way that new motilities of global talent have evolved, how should policies to attract skilled transient labor be modified to be more effective in serving the interests of host regions (*Findlay and Geddes, 2007*)?

At the same time, Hungary's rapid economic development increases domestic labor demand, particularly within a handful of branches (especially construction, service, and retail). Therefore, migration is becoming a matter of increasing political concern within the country. General changes in migration policy are particularly urgent, and should be integrated within and aligned with regional policy (*Krisjane, 2007*). And that is the point to reflect in *evidence that global talent can boost a regional knowledge economy*. So the low qualified migrants loss their chance for work. Some of them moved to shadow economy.

In emerging economy, like enlargement countries join to the *free flow area*, offer good examples how the four elements of flow, capital, labor, services and goods have to be interacted. Many of habitants work abroad and, although the exact numbers are not known, various experts set the figure at 250-300 thousand. One of the best evaluator is the amount of remittances. Ireland and Great Britain have been particularly popular destinations. What was initially not expected, but which has increasingly become evident, is that the current migration story is having an impact on the domestics labor market, as well as on that of the receiving countries, for which moderate structural changes were expected, and possibly exaggerated.

Hungary is developing a new "Talentis" program - *Hungarian Silicon Valley* -, the plans is to attract young talented people from neighboring countries or far, put them in excellent circumstances to develop them in an early life period. By permeable border, we support the brain circulation like an effective form of human capital development. A framework called Project Retour – *Homecoming* -program, is dealing with how we shall manage the central and individual interest in our homecomings. The National Technological Office launched a program for those emigrated researchers who spend more than 4 years in abroad, support them to came back to be involved in research.

The foreign study has different approaches in gradual and post gradual level. The main approach is that it supports the institution's budget and also places it on a better international ranking, developing world wide contacts, while post-graduation is important to the country level concerning competitiveness.

Finally what is the *global talent*? It means, on global standards a good command of transferable skills We agree on avoiding the process of regional disparities in the world, we should take in progress the compensation of education cost from host to sending country. e.g. to pay back the cost of study, if you leave the country after the graduation.

### **FDI IMPACT ON SPATIAL STRUCTURE**

As it is known (*Nijkamp, 1988*) the *manufacturing industries* near the main market have a meaning full spatial and branch restructuring process. It was verify in the emerging countries at the turn of millennium (*Rédei, 2002*). The volume and content of international trade shows Hungary's high level of integration. The permanent

FDI in the country, especially in the manufacturing structure, verifies the presence of global interest. In the first period of transition at the western border area was mostly in the labor-intensive textiles, and food branches, but by the mid-nineties had shifted towards the machinery and services sectors, which have more technological value added. In the first half of the last decades the food industry's presence was increasing in most regions; in the second half of the nineties the machinery sector became more important, attaining a meaningful position, especially in the western part of the country. In some branches the global chance which transnational firms will buy the market, and to move to the next one, had been played in e.g. sugar, textile, chocolate. The FDI was regionally concentrated near the western border and in the Central region. This was due to the extra profit obtainable there, as well as to the area's low competitive barriers, low local costs, comprehensive business trust, living standards, traditional working style, qualified labor and better access to the European core market. These regions have a historical background within the Austro-Hungarian Empire, and have more experience with the market economy.

FDI can be evaluating as a positive and negative effect. It is doubt about FDI is contributed to *avoid Hungary from a deepening crisis in 1992-93*. Hungary was able to avoid brain drain and put their talents to member of regional decision board. FDI is not only a capital injection for regions, but also provides international competition within many sectors of production. The regional disparities are increasing. In the west, where the big transnational companies are affiliated, their size, efficiency, *intra-firm arrangements*, outsourcing, technological expectations and global management style are creating an international standard of mass production. In the east, smaller local companies are at an earlier stage of supply chain management, with inferior living conditions and less value-added activity. Their size, ownership and competitiveness are interdependent.

From a geopolitical point of view, it is important that the neighboring countries' economies have no pulling effect. *Horizontal regional specialization* can be better verified by export values than by employment data or industrial production. Instead of the earnings level, the standard of living should be the basis for comparison. The Great Plain has an early level of specialization, with a low level of industrialization. In 1998 the greatest geographic concentration occurred for the chemical industry, the wood, paper and printing industry and for mining and quarrying.

## **EUROPEAN HIGHER EDUCATION AND EUROPEAN RESEARCH AREA**

Our country has been a long period being the last stop of West and first stop of Balkan region. The interaction and contamination was the main motivation in Hungary. We have been joining, and advocating, have done efforts to learn the procedure to get international partners. In some cases the missing local co-finance, the contacts development was fairly rapid. It was a *beneficiary position* for Hungary, before the membership, the rules of project based on composition two members and one non-member. The research coordinators, the team workers are the main contacts.

The techno intensive branches of manufactures have a growing evidence for research, to build permanent channel from science to the everyday routine. Around the headquarters started to establish a core research team. The technological diffusion was an engine of better position. In the investments the business services and R&D has become more and more important. Several transnational companies choose this region to establish new R&D centres; the regional innovation system became reality. In the global R&D system the role of Central Eastern Europe, especially Hungary is increasing. Foreign affiliates have become very important participants in the national R&D system, accounting for nearly half of business expenditure on R&D in Hungary. In the manufacturing these rates are much bigger. These firms are very concentrated regionally and sectorally: regional clusters start to form which are enlarging owing to new investors and subcontractors who also relocate their activities to Hungary, exploiting the external effects (*Kukely, 2008*).

In the first half of 90's two counties near the European market and central location had *regional specialization* and reached the top regions. The geographical position appreciated and provided a good position. The auto assembling and the supply chain management became an issue.

Meanwhile in early 90thies the collapse of R&D was experienced the loss of researchers, the central support of research and SMEs were too weak to take consideration on it. Time to time the confidence in industry and in services was rising, some company re-engineering the former R&D, like GE. The research institution losing the central finance, turn and learn more about the market interest. Not only to take the money and run, but invest more in your mind, enterprise, learn the voice of venture.

By the fact that more and more TNCs affiliated and *relocated* or newly established firms here, they took their former global network to Hungary. The international business climate developed the domestics' environment. The interaction was highly oriented by the most experienced players. Nevertheless they trained the local actors, too. Several evidences sup up our capacity and adsorbents. The habit of Hungarians is the low internal and international mobility. Although, mass education was going on, the local labor market we can experience mismatch. The immigrants could temporary feel the gap, but for highly skilled the re-engineering is needed. It is an interesting result of our analysis on small territorial level the centres get the 80% of the better ratio of immigrant population. The young, over the average skilled people settling in the centres and the periphery is for elderly migrants from Austria, Germany and Netherlands (*Kincses and Rédei, 2010*). The silver economy is one of the economical options for next generation. 40% of Hungarian population in 2050 will be over 60 ages!

Nowadays the free flow area is fully open for Hungarian labor force. It is not expected in Western Europe any *migratory cunami* from East. There is a high probability that the illegal employment will be legalized from the shadow. What we see now? Those who were employed illegally in Austria they became legalized members of market, and a few new employee in typical sectors, like services started to work.

Why is domestic education unable to feed this demand? In the past two decades the number of universities was rising from 40 to 70! Beyond the mass education

there was not effort for *individual care of talents*. And the talents are in global business process an engine roll. Many advanced economies such as the UK have modified their skilled migration programmes to try to *attract more global talent* on the premise that they benefit economic growth through stimulating innovation and increasing the stock of human capital (OECD, 2002).

The academic literature has shifted from interpreting highly skilled international migrants as an integral part of the hierarchical ordering of international economic space to seeing them as global agents within transnational networks. The shift is a significant one since it raises the issue of how knowledge is transferred through the migration process.

### **HOW CAN NATIONAL RESEARCH AND EDUCATION BE INTEGRATED MORE USEFULLY?**

The quality management was introduced in the education after 2000. The actors of business are be certified on somehow from the mid of 90thies. All accreditation procedure need to complete a skill, and by usage of new technology required training. In was a crucial question for those firms, which have high added value in their activity. The quality of staff members could not follow the expansion of institutional development, namely the new specialization, faculty and graduation. The usefulness of BSc was not clear on labor market, how to employ this qualification? On MSc level the interest towards the natural sciences decreased. The interaction between the labor and education is in an early level.

The international companies are the flag on this action, to support skill working a specialization, in this way they could recruit eligible workforce. The TNCs are *highly supporting vocational training*; they are donating several machinery and technical assistance. It is an aspect to find work force in 100-150 km. As it was mentioned the Hungarians are no mobile persons and the value of real estate is territorially much differentiated. It is difficult to sale own home and to buy another near the opportunities, due to the value differentiation. In Hungary the ownership of flats or houses are extremely high, near the 80-90%! And by global financial crisis this situation is not better at all. We can talk about a real estate boom near the border area; the commuters are residing on the other side of the neighborhood. So the former border area loss his cutting rolls, and became an *active contact zone*. The real estate started to flourish. The commuting is across the border speed up. And the main economical actors recruited their workforce in a new way. Probably the firms are looking for flats and houses to rent in 150 km distance from the local people for far commuters. This chain based on contracts and personal trust.

When the government launched a new major program in 2004 for the establishment of *Regional University Knowledge Centres* (RUKC) they targeted already established partnerships on which these new networks could be built. (The program was later renamed to 'Pazmany Peter' program). The main aim of this program is to *create regional knowledge centres with the collaboration of university, industry and government partners (universities as main actors) for high-level R&D and innovative activities for the benefit of their regional environment*. The program targets networks that bring together the

whole 'innovation chain' and concentrate a critical mass of financial and human resources. The program aimed to achieve the establishment of *long-lasting structures* that will exist beyond the duration of the governmental support as well. This program has a *strong regional focus* within supporting networking. The 5 chief universities were labeled as Research University in 2005. They are forced to learn how to do the fundraising, project and research management, and to run more implementation of research result. Meanwhile the chief research centres made effort to reach the label of centres of excellence or Marie Curie training centres or some other, which was an essential tool to join the European network. And the international enterprises have more confidence such institutions. In European experience the horizontal career are highly supported, which means to start on a general range, get more experience and then you can better find your ability place on working market.

In 2005, the *Salzburg Principles* were established in Bologna Process as the basis of the reforms for doctoral education. In the half decade that has passed since then, Europe's universities have carried out wide ranging reforms in this area, most notably by establishing doctoral schools. The achievements and experiences of Europe's universities affirm and enrich the original principle. The mutual benefit among the actors international investors are missing, the local economy is not partner. It looks EU sources are in wide range but it looks to put their local co-financing makes difficulties. The project monitoring shows how the individual interest overwrites the common use.

The recommendations, including a series of clues to success and obstacles to clear, have three over-arching message:

- The doctoral education has a particular place in the ERA EHEA, and makes it a fundamentally different from the first and second cycles. We experienced in Hungary after the institutional boom, there was a comprehensive interest to establish doctoral school. The several withdrawals of National Accreditation Office point out it make difficulties to fill the staff by expected lectures. This procedure is time consuming.
- Doctoral candidates must be allowed independence and flexibility to grow and develop. The doctoral education is more individual, the candidates must look for their goals and to provide the cost to take it. And at this point among the doctoral school are much differentiated as it looks in the origin of certification. More or less those who are offering support they know the activity is how helpful for them.
- The last on is, the doctoral schools must be developed by autonomous and accountable institutions taking responsibility to cultivate the research mind-set. In Hungary the schools have no time to develop an own profile, the professors have an important role to construct a workshop, using their scientific relation and reference to push their student forward.

The universities reported, if they are too successful to won more projects, they are not able to establish own research found, to keep the new result, methods in the wall of universities. If the new result is beyond the wall, the patents or some others will be independent from the universities. They had reported the most effective



stories are beyond the wall, move to an SME from the campus. The research capacity of universities is limited. The best case if the new result is able to penetrate the daily routine.

## CONCLUSION

The national regional policy after 1990 had high expectation, namely the European integration process will contribute to resolve the spatial disparities. The European regional policy in 80's had remarkable results on this field. And what we have identified the traditional inequalities remain characteristics. In the two decades transition period, each regime preferred the development of local economy. The main stream was around combining the TNCs and SMEs in a network. The strategic and operational goals of National Development Plan had chosen as button up actors the SMEs to join to global economy. This policy based on demand and offer experience in the framework of catch up EU standard. In local bargain the advocating roll of domestic actors was on an early level. The lagging areas situated along the eastern border, which have not so intensified cross border activity.

What we have learned the education and research as social - human and technical innovation affected the regional disparities. More or less the regions had taken effort to develop and use effectively the human resources, by techno intensive step extend the production. Some of them attracted the FDI as a low paid area and manufacture was planted. The regions on western border have good access to the European core markets this situation is permanently implied the innovation. There are top investors, who represent the business trust for others, with sizeable companies and supply chain management or for specialization.

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## THE ROLE OF UNIVERSITIES IN SUSTAINABILITY EDUCATION

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### **ABSTRACT**

*Sustainability is one of the most pressing issues society faces today — specifically the unsustainable nature of so many of human practices. Yet, almost paradoxically, this situation offers significant opportunities. Our current methods of production and consumption are simply not sustainable in the long term and so, for the purpose of saving the environment, the behaviour of both consumers and producers needs to change. Education can foster these behavioural changes. Sustainability is becoming the focus of much environmental education, and emphasis is shifting from traditional learning styles to a search for practical solutions. Sustainability has become a general orientation for learning. However, education in sustainability is only just now emerging despite decades of progress in recognising the importance of sustainable development. It is playing an increasingly active role in the field. This paper examines the current situation, the trends in educational activity, and the different approaches of universities. Our research reveals different methods and results from the universities analysed. Effective education can produce a change in society's attitudes, values, and actions, and the focus on education for sustainability is a key element in the creation of sustainability-focused attitudes and values. University activities in community environmental education are very useful for raising environmental awareness and helping to raise public understanding of how relevant practices are dynamic factors in the shaping of a new sustainable future. Universities can and should produce graduates with the values, skills, and knowledge to address sustainability and sustainable development. They have a responsibility to define and facilitate sustainable development within their teaching and learning. Universities should be a major contributor to society's efforts to achieve sustainability.*

Keywords: sustainability, sustainability education, sustainability-focused attitudes, role of universities

### **SUSTAINABILITY EDUCATION (SE)**

The Millennium Ecosystem Assessment (MEA) warns that the Earth and its population are in a time of severe crisis characterised by pollution, climate change, invasive species, over-exploitation, habitat change and the loss of ecosystem services. If we want to save the environment, we must to change our behaviour is affected by values and attitudes. There is a general consensus on the notion of education as an important tool in achieving change and sustainable development (*Mochizuki and Fadeeva, 2010*). To manage environmental problems we need to change human behaviour – namely, change culture. We must do more than raise awareness of opportunities; we must do it in a reasonable way. The challenge faced by human requires rethinking of our behaviour, education in many aspects of way of life.

Sustainability is becoming the new point in environmental education, and emphasis is shifting from the traditional learning style to another solution. The issue of education in sustainability has developed from studying nature to taking a new look at the way we think, in which measures to sustain standards of living are pursued and environmental burdens reduced. Many consumers have a strong desire to be eco-friendly, but cannot, due to a lack of practical information. Education in sustainability and awareness for communities can play a remarkable role in satisfying information needs, but the biggest problem lies with resource constraints. In the process of globalization relationships such as people-nature, people-groups, individuals-social institutions need to be addressed in education.

Agenda 21 was the first international document that mentioned sustainability education as a tool to achieve sustainable development. *UNESCO* (2005) defined essential characteristics of the education for sustainable development. All of them deserve attention, but we emphasize that education for sustainable development is interdisciplinary, locally relevant and culturally appropriate, and deals with the well being of all three realms of sustainability (environment, society and economy) and builds civil capacity for community-based decision-making, social tolerance, environmental stewardship, adaptable workforce and quality of life (*UNESCO*, 2005).

The sustainability education challenges basic assumptions, practices, and institutions of established disciplines. The sustainability education challenges both, what is taught in and how (*Cortese*, 2003). If our graduates are to cope creatively and successfully with society's most difficult problems, they must be exposed as students to those problems, and higher education needs to find innovative ways to develop students' capabilities (*Rowe*, 2007). Literature on education for sustainability calls for pedagogical innovations that provide interactive, experiential and transformative learning (*Steinemann*, 2003; *Rowe*, 2007; *Sipos et al.*, 2008). *UNESCO's* (2009) Bonn Declaration calls for building the capacity for knowledge into action for sustainability, and calls for curricula to be oriented to meet this goal.

Pollution prevention, sustainable design and better (cleaner) production demonstrate our main value through industrial applications. It is, therefore, more important for students to have direct personal experience of environmental fields. The value of pollution prevention activity depends on a number of variables (e.g. the local community, regulatory drivers, technology, labour costs). The best solution depends on how well the student identifies the variables and gathers related data and how these data can be applied. Thus, learning how to identify and analyse these variables is an essential skill for implementing sustainable development.

Effective education can produce a change in societal attitudes, values and actions. The focus on education for sustainability is a key element in creating sustainability-focused attitudes and values. Providing descriptions of the technologies and applications, then teaching the students how to recognise and use the latest innovations and how to evaluate new technologies are key topics in any sustainability courses. The students learn the mechanics of identifying, analysing and creating sustainability in the classroom. *Fowler and Engel-Cox* (2006) found that, until the students have practical experience applying pollution prevention and

sustainable design recommendations to a real-life situation, they do not understand the complexity of the process. Although performing environmental assessments for real organisations is likely to involve more effort for both teacher and student than a traditional lecture-based course, the authors believe that the experiential learning activity is the more valuable investment for the students, community organisation and the university.

There is a clear trend towards education in sustainable development education in both the school system and the corporate sector. The intention of businesses which guide such educational and awareness activities in their communities is mainly to help stakeholders understand their corporate activities and so enhance their reputation. Some companies publish PR material which includes environmental advice – good also from the promotional point of view. In addition, if education is incorporated into education concerning sustainability, business can contribute more than it has done to date.

At the end of this chapter, we can define what the sustainability education means. Sustainability education is a compound of different themes to do with the environment, society, and economy in order to make sure that we leave liveable planet behind for the next generation. The sustainability education refers to a new form of education to teach student to live differently, to let them know they are the part of this world, understand their impacts, and promote to change their lifestyle and behaviour. Education will help us to achieve society's environmental goals (Keene and Blumstein, 2010). Sustainability education can contribute to economic progress, stability, environmental quality and societal advance.

### **Solutions – what can be the university's roles – theoretical framework**

At present governments, employers are stepping increasingly forward to sustainability. However, fundamental skill, primarily literacy for sustainability, is being neglected. Whatever humans do, their activities require literacy practices, and it is essential to be aware of principles, opportunities and solutions. With awareness they can be critical of function of the world and can work solutions which help to achieve goals of sustainability.

The sustainability education helps students increase their understanding of sustainability problems, complement their methodological competence in applying problem solving approaches and gain hands-on experiences. Exploring, evaluating approaches makes students aware of the powerful role of values, resources, attitudes. Competence approaches are very useful and important. Brundiers *et al.* (2010) summarising key competencies in sustainability identify three clusters of them:

- Strategic knowledge, which, according to the authors, integrates systemic, anticipatory, normative, and action-oriented competencies. The cluster includes competence in analyzing and understanding the status quo (current state) and past developments (history); creating future scenarios and sustainability visions; assessing current, past, and future states against value-laden principles of sustainability; and to developing strategies to move from the current state towards a sustainable future.

- Practical knowledge involves competencies necessary for linking knowledge and action for sustainable development to bridge the knowledge-action gap. So, they are mainly implementation skills.
- The collaborative cluster involves competencies necessary to work in teams and in different knowledge communities and it includes among others competence to collaborate with experts from academia, industry, government, and civil society.

Universities can and should apply radical innovations in their educational methods, including curriculum, teaching, research and other services. Sustainability might be comprehended in different ways in different economic and cultural options, accordingly it is impossible to define the appropriate competences for sustainability education. Without a list of competences, universities need a deliberative and situated process of first specifying competences, and then articulating them in their educational programmes. *Podger et al.* (2010) having taken a different starting point argue for the importance of dispositional thinking in sustainability education. Dispositional thinking in this sense involves the ability to think critically integrating multiple experiences and perspectives. This is why it is suggested that higher order dispositions may be central to education for sustainability as a means of understanding the development of sustainable habits of mind. So, the authors focus on personal and social competences as the key personal qualities or virtues associated with a kind of consciousness, essential for change towards sustainability. Generic skills represent orientations towards studies, work, social interactions which open people's minds to different ways of looking at the world (*Podger et al.*, 2010). Their paper summarizes that formal learning institutions to extend the agenda to comprehend the development of whole person education which cultivates critical moral consciousness. Besides, *Parker* (2010) points out that not just the intention but knowledge supports moral agency.

Dispositional thinking involves the ability to think critically integrating multiple experiences and perspectives (*Facione et al.*, 1995). Sustainability itself can be understood as a disposition towards human rights, peace, active citizenship, participatory democracy, conservation and ecological, social, and economic justice (*Sterling*, 2001). *Taylor* (2000) identifies the necessary for individuals and societies to move towards mutual understanding. *Sterling* (2001) argues that a special worldview is elemental to guide the transformation of the education system, and the agents for change including teachers and students. This thinking emphasizes that choices are open and choice and action are often dependent, in addition this supports discovery of deeper themes and structures behind events.

*Glasser* (2004) points to the need for education that integrates reason, emotion and promotes "emotional maturity". He discusses that the pedagogy required for a sustainable world needs to foster principled action, by deepening existing concerns and helping make actions more consistent with concerns. *Orr* (2004) identifies a clear relationship between sustainability and virtue. *Fien* (2001) argues that an educational goal to sustainability should include concern for environmental, responsibility for sustainability, and knowledge and skills to contribute to sustainable development. That is to say: who we are, how we relate to others, what our purpose is as

individuals and as society. Research shows that familial and educational environments tend to build an increasingly responsible sense of moral identity (Daloř *et al.*, 1996). Mustakova-Possard's research (2004) shows that without the cultivation of moral motivation, critical thinking does not lead automatically to socially responsible actions.

There is a European Commission-funded project (Comenius-2-project) to develop a framework to integrate education for sustainable development in the teacher training curriculum. This project defined five competency domains: knowledge; system thinking; emotions; ethics and values; and actions. Many efforts try to define competences for education of sustainable development. Good example is the Definition and Selection of Key Competencies (DeSeCo) project, which specify competencies for higher education. The TUNING project, a European survey involving hundred European higher education institutions, proposed competencies to be developed through university degree programmes (*TUNING Educational Structures in Europe*, 2007). In addition to the efforts of UNECE, OECD and European Union to specify competences, there are important initiatives in the USA to reorient higher education towards sustainability based partly on competence approaches. For example, the 2008 Higher Education Sustainability Act authorised a \$50 million grant programme at the Department of Education that annually supports hundreds projects to carry out faculty, disseminate good practices, case studies, educational guidelines, develop analytical tools.

Higher education institutions must to inspire students to change their attitudes, values or behaviour. We were arguing that university can improve the quality of education and therefore quality of life for all people.

### **Asks and answers about roles of university**

The university means concepts of freedom of access to knowledge. The university is not just an indifferent reflection of knowledge, but set the guidelines and standards for development. However, while international declarations may provide useful publicity to encourage progress, they are not sufficient to change institutional and disciplinary practices in higher education (Bekesy *et al.*, 2007).

University's first function is providing education and training. Second, they provide professional training. Thirdly, since they are research institutions, responsible for carrying out research in a broad extent of disciplines, including interdisciplinary work. Fourth, they play significant role in regional development. And fifth, they have a social function to promote the intellectual and social development of society.

Education can build a relationship between knowledge and ecology which would influence their lifestyle. But there are little attention has been given to how to teach adequate skills. What should be taught, what should be learned, what abilities for acting, which concepts and problem solving strategies should have acquired as a learning process? What kind of complementary elements might we need in order to generate a positive cycle of change for sustainability? An environmental education programme will produce different outcomes since we have no clear goals or objectives. Education and social marketing run the risk of teaching wrong behaviour

and practice, but, if we do not know what works, how can we know what and how to teach? How university educational programmes can better preparation students to suitably deal with complex environmental issues and contribute to sustainable development. With environmental education we can cause irreparable damage to the environmental system when there is no evidence of environmental benefit.

Students and teachers try to focus on sustainability through challenge conventional methods on education and require new modes for integrative learning. Efforts to adjust curricula to meet these challenges are increasingly common (*Scholx and Tietje, 2002; Steiner and Posch, 2006*). These can be programme, working groups, simulations, or case studies. Many of them focus researches, real life learning, and promote creative, self-regulated learning. They need to transport theoretical knowledge into the practice. The problem is the disciplinary gaps, are rooted in differences between scientific paradigm and languages and the real world. To develop sustainable solutions for complex issues environmental scientists need boundary crossing skills next to domain specific knowledge and social skills (*Fortuin and Busb, 2010*). The scientists need to be able to intersect the barriers between theory and practice. To how to cross these barriers is an ongoing debate.

Fieldwork is very important to develop students' ability to integrate classroom based knowledge and to facilitate communication between participants (*Scholx and Tietje, 2002; Steiner and Posch, 2006*). Fieldwork emphasizes the importance of good planning, management and effective decision-making skills. *Brundiars et al. (2010)* words, 'bringing real-world issues in classroom' contributes the right way for sustainability education. Active learning means students are actively engaged rather than just gathering information.

What can be the teachers' role? They can stimulate to think critically, to act adequately, and to make properly decisions by asking questions and providing tools. Facilitation rather than lecturing can be better methods. They need to expose the complexity of environmental and societal problems to students. Despite the numerous discussions about evaluation, the 'more publications' system is dominant strategy for advancement in universities. Professors need to actively engage in teaching and services. Transforming and transdisciplinary learning should be supported and encouraged. University community relationships are relevant to incorporate community into the classrooms and everyday activities in universities. *Fortuin and Busb (2010)* reveal that realize that one should cross boundaries to solve problems could be one of the most important elements in the education.

*Janet Moore (2005)* describes a set of recommendations for planning sustainability education programs from case study of University of British Columbia (UBC). She suggests seven categories of recommendations that will aid universities to achieve goals and objectives of sustainability. These recommendations promote and support the practice of sustainability education, but do not concern campus operations, practices. These goals are: infuse sustainability in all decisions; promote and practice collaboration; promote and practice transdisciplinarity; focus on personal social sustainability; integration of planning, decision making and evaluation; integration of research, service and teaching; create space for pedagogical transformation.



Sustainable university has three main characteristics. The university is self sustaining. It contributes to a sustainable quality of human life in a society. The university contributes to the design of human activities maintain the biosphere. Universities need to be leaders to prevent ecological problems, and to create sustainable economy and society. They can generate sustainability education programs and sustainable university communities. Universities are in an exceptional position to address sustainability challenge to shape minds, attitudes, values. Not only universities can educate students to sustainability, but they are able to teach interdisciplinary knowledge related to sustainability. However universities can ensure ecological literacy, because students are not learning enough about how to live day by day. Even universities can institutionalize sustainable practices on their campuses, for example energy and water use reduction, waste management, create sustainable alternatives to transit, to eat, green buildings. Universities can contribute directly to sustainability with their research programs.

There are examples of how universities in different parts of the World are trying to facilitate students to develop competencies for sustainability. In other words, how they translate the concept of competence theory into actual learning activities, courses, programmes. There are many good examples of sustainability being incorporated into the curriculum, and other activities. Sustainability has become a general orientation for learning. But the outcome is very complex and unpredictable.

Several studies reported a positive relationship between higher education and environmental concern. Moreover, education has a stronger effect on environmental concern than has age, because, not just the intention but the knowledge that supports effective function. Universities need for better understanding of, and innovations to sustainability challenges.

The purpose of this paper is to analyze of how universities are trying to foster students and staffs to develop a range of competences for sustainability. How teachers can translate the concept of competences into learning activities, courses and programmes. Change to more creative pedagogies, attention to real-world learning has led to development of knowledge and skills of the students.

Notwithstanding numerous international and local commitments to sustainability, small percentage of student is engaged in sustainability in campuses.

### **Number one – the best practice**

The *University of British Columbia* (UBC) (Vancouver, British Columbia, Canada) is the third largest university in Canada, with over 32.000 undergraduates and 7.300 graduate students. UBC awards 68 types of undergraduate and graduate degree from 11 diverse faculties and is ranked 38th in the 2010 Webometrics Ranking of World's Universities.

In 1990, UBC signed the Talloires Declaration, an international commitment to environmental sustainability in higher education. The Talloires Declaration outlines an action plan for incorporating sustainability and environmental literacy into teaching, research, operations and outreach practices of the university. In 1991, UBC signed the Halifax Declaration, another commitment to the importance of

university leadership on the path to sustainable development. In 1997, UBC created a Sustainable Development Policy under which all UBC students will be educated in sustainability.

The UBC is a living, learning place in which to explore and apply what sustainability means. To integrate real-world learning opportunities into sustainability programs and faculty can draw on a variety of models, including project and problem-based practice (*Blumenfeld et al.*, 1991; *Barron et al.*, 1998; *Dale and Newman*, 2005) and internship (*Linn et al.*, 2004). Campus as a living laboratory means various opportunities to support the creation and implementation of sustainable practices on campus (e.g. operations, purchasing).

There are numbers of actions, opportunities to raise staff and student awareness, including website, blog, sustainability office, internships, and work possibilities. Students come with different backgrounds. Therefore are various programs, opportunities, and website, discusses.

*Wilmot* (2009) highlights that field work can be the one of the most valuable learning experiences for students. She outlines numerous ways in which field work generate greater student and staff awareness and action to reduce potential impacts. These examples emphasize a practical pedagogy linking aspects of environmental impacts through everyday choices and actions, and built stronger competencies in environmental responsibility. Their active, practical and collaborative methods can produce positive student feedback and demand form students for more solutions as well. Any activities that can facilitate and achieve reductions of the environmental impact also generate a further sustainability premium for the University, helping to amend sustainability performance. UBC links academic, research, and operational sustainability to become a living laboratory. The University creates sustainability teaching and learning in and across all disciplines, and encourages students, staff, and faculty to carry daily sustainability practices out beyond the campus.

They make UBC a living laboratory in environmental sustainability by combining its sustainability leadership in teaching, research, and operations. For example, they established a baseline of the UBC carbon footprint, and they foster social sustainability through teaching, research, and community engagement. Through campaigns, groups, programmes and events, the University offers many avenues for students to learn about sustainability and participate in one of its core missions. They have waste reduction programmes and climate action initiatives.

Website, Pledge is very useful tools to exchange announcements, to store documents and notions, and to confirm appointments.

The sustainability website ([www.sustain.ubc.ca](http://www.sustain.ubc.ca), 2011) offers a broad selection of courses to take, research to participate in, experts to consult (sustainability blog), and ways to get involved in campus sustainability (societal conversation). In the Sustainability Pledge, students commit to making more socially and environmentally responsible decisions. The Pledge raises awareness, promotes involvement, and demonstrates the commitment that students have to sustainability on campus. There are over 25 sustainability-related programmes, 350 courses, alternative credit options, and numerous other opportunities, internship, volunteer-run student clubs, and work that engage, inform and connect student to

sustainability challenges, solutions. UBC SEEDS (Social, Ecological, Economic, and Development Studies) is Western Canada's first academic programme to combine the energy and enthusiasm of students, the intellectual capacity of the faculty and the commitment and expertise of staff to integrate sustainability.

The Residence Sustainability Coordinator Programme is an opportunity for students living in residence to lead, inspire, and engage other residence students to find sustainable solutions and create change.

The University participates as a Charter Participant in the Sustainability Tracking, Assessment and Rating System (STARS) programme offered by the Association for the Advancement of Sustainability in Higher Education (AASHE). The STARS programme is designed to: provide a framework for understanding sustainability in all sectors of higher education; to enable meaningful comparisons over time and across institutions using a common set of measurements developed with broad participation from the campus sustainability community; to create incentives for continual improvement toward sustainability; to facilitate information sharing about higher education sustainability practices and performance; and to build a stronger, more diverse campus sustainability community.

The University's long-term goal is to achieve net positive energy on campus through conservation, waste-heat recovery and renewable energy sources. In other words, they aim to produce more energy on campus than is consumed. With these they save money and reduce greenhouse gas emissions.

The University joined to the *Transition Towns* project that make efforts to reduce the number of cars that travel to and from campus every day - new cycling routes, pedestrian walkways, greenways and a campus shuttle service).

The campus is an ideal living laboratory to discover and demonstrate solutions for waste management. They already reduce, reuse, recycle and responsibly manage their waste. The short term goal is to divert 55% of solid waste from the landfill. The University tries to achieve a net positive water system for the campus. This means they will find innovative ways to consume water more efficiently, harvest rainwater and use technologies to reuse and recycle water on campus. In addition to, they store and exchange clean water and manage storm water.

In 2009, the University prepared its Climate Action Plan for emission reduction. The Plan identifies Greenhouse Gas emissions reductions strategies in numerous areas. UBC is developing a new Energy Management Plan to ensure accountability, maintain energy savings and identify further conservation opportunities. They operate several ambitious energy management programmes that reduce the consumption of resources across campus. They have some projects which deliver alternative energy technologies to minimise the building thermal load and greenhouse gas emissions in new and renewed buildings.

UBC has developed a handful of case studies about its campus operational and institutional sustainability experience. The Sustainable Purchasing Guide helps to purchase more sustainable products and services.

The University's collective efforts make a significant impact and provide positive role modelling on- and off-campus. Every project plays an important role in helping to make the University a sustainable and healthy community.

## CONCLUSION

Human need to plan, design and built new forms of system, change attitudes, value sets, and understand natural systems, and our impact on their processes. Then change our learning system to develop technological processes in order to reduce human impacts on natural systems. Beside ecological, social and economic framework takes effect to our Planet. Without understand of this three bottom line, new technologies, new applications will not deliver the anticipated benefits.

The missions of universities are teaching, research and service, no matter how they are put into practice, should be interactive within the university and with society. Universities need for better understanding of, and innovations to sustainability challenges. However there is no universal approach, thereupon methods to sustainability. Every university needs to develop its own curriculum and other activities possibility to achieve goals of sustainability. Transformation, alternative pedagogy, new evaluative system and change leaders are needed at universities. The overall goals would be to create tools to integrate sustainability in communities.

Sustainability embraces more complex issues than transportation choices and recycling, including social, ecological, economic, political and spiritual components. Sustainability also embraces how things happen — decision-making processes, organisational structures, leadership strategies, strategic planning initiatives and collaboratively envisioning the future, and there are good examples from university-level sustainability education programmes.

Graduates leave university with understanding of the concept of sustainability, and with relevant knowledge and skills to apply sustainable development. University's function is not only teaching, but also contributing to national economic and social development, preservation of cultural heritage, values, and the protection of the environment.

There is correlation between the sustainability level of universities and the environmental awareness level of students and staff. Hence universities have unique task to develop skill level in their graduates that prepares them to confront environmental, social and economical complex issues.

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## **LABOUR MARKET PERSPECTIVES OF STUDENTS GRADUATED IN 2007 AND 2009 FROM KAPOSVÁR UNIVERSITY**

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### ***ABSTRACT***

*Career follow-up systems examine how graduated students find employment and adapt to a new workplace. This survey is useful feedback for Kaposvár University, as it was carried out among pupils graduated in 2007 and 2009. More than seventy-five percent of the students who graduated in 2007 have found a job by now. Fifty percent of career starters who graduated in 2009 have also found employment. More than half of the examined graduates work at their first workplaces and three-quarters of the questioned persons are full-time employees. Main employers of students graduated in 2007 are institutes run by the state or municipalities, while pupils graduated in 2009 were mostly hired by economic companies. Sixteen percent of students graduated in 2007 and ten percent of pupils who took their degree in 2009 work in management posts. Less than twenty percent of the employees work at a second job. The monthly net income of graduates' households is relatively high, because after starting their professional life many have moved to a separate residence from their parents, though they do not yet have their own children.*

Keywords: career follow-up system, graduated, students, career starter, employee, employer

### **INTRODUCTION**

In Hungary the direct recruitment form universities has started in 1993. At this time the domestic labor was adsorbed and the main sources of eligible employment, especially the foreign owners were the new graduates (Rédei, 1995). Surveys of labor market perspectives of students graduated at Kaposvár University had been carried out from 2006 to 2008 by Szabó (2011). Since 2009 motivation and career follow-up researches have been started within a project supported by the European Union. Nowadays, it is an obligation for colleges and universities to follow up their career starters in Hungary. The article focus on the requirement of education namely to follow up bridge from education to world of work.

### **MATERIALS AND METHODS**

In April 2010 after methodical preparation e-mails and letters containing research information were sent to the graduated students asking them to answer an online questionnaire. The survey was anonymous and representative, with the help of individual passwords and a data-matrix. The questionnaire was edited by the

Ministry of Education and Culture and Educatio Nonprofit Ltd. and was completed by the researchers of Kaposvár University. Most of the graduated students sent back their answers in a week after receiving the e-mails and letters. Thirty-five percent of students graduated in 2009 and only sixteen percent of students graduated in 2007 have answered the questions. Students graduated in 2009 were the first Bologna classes, which gives more importance to their answers, although the loose of enrollment was high that time in Hungary, so each fourth student was able to finish their studies in time.

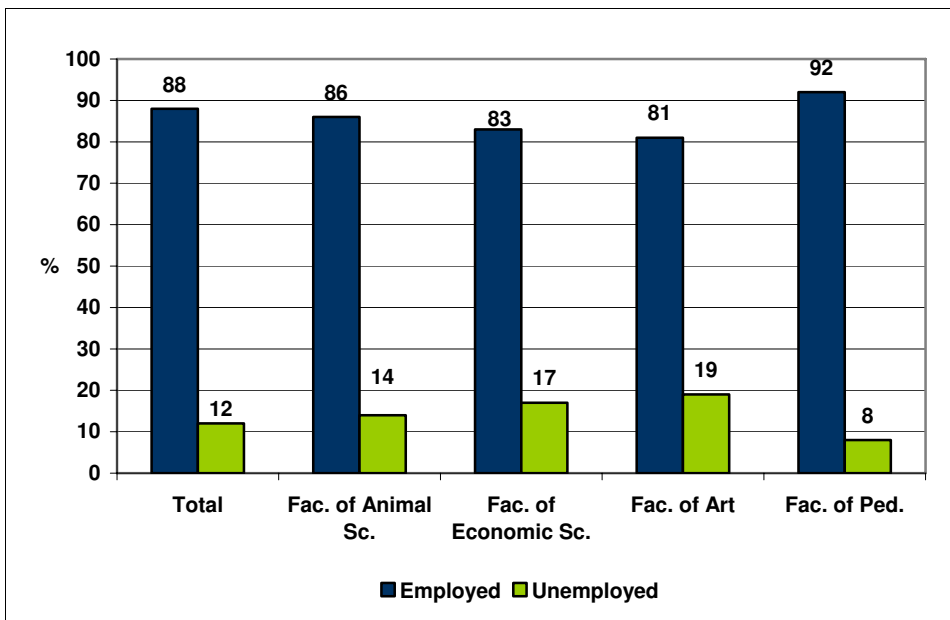
## DISCUSSION

Seventy five percent of students graduated in 2007 and more than fifty percent of students graduated in 2009 have found a job up to now (*Figure 1* and *Figure 2*).

In 2007 students of Faculty of Pedagogy were the most successful in finding employment. Most students of Faculty of Animal Science possessed a job in 2009, however only half of the students of Faculty of Economic Science found a job. As one can see on *Figure 2* unemployment rate was relatively high (38%) in 2009, because of economical financial crisis and also because students have started to look for a new job only after having their diploma.

Figure 1

### Have you found a job after receiving your degree in 2007?

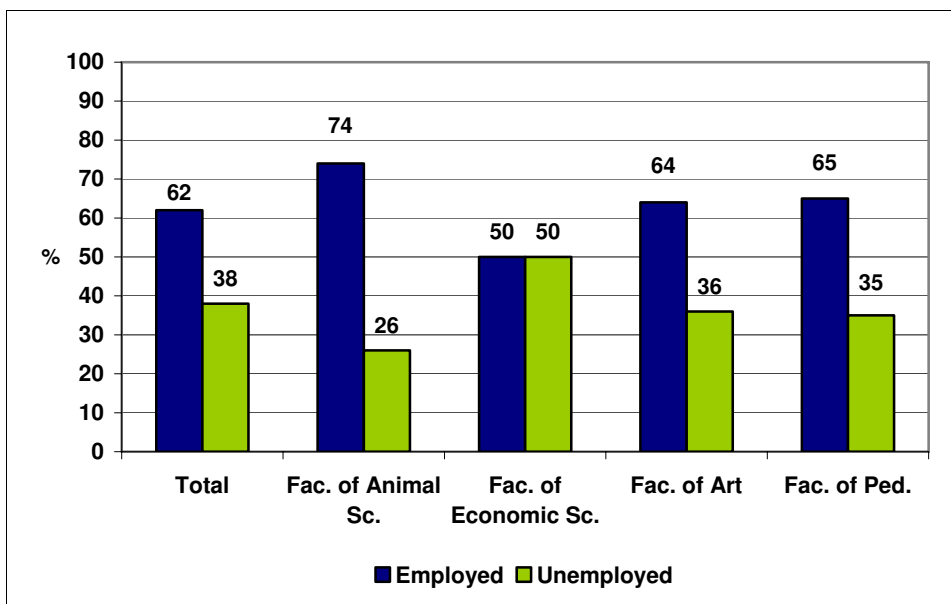


Source: Career follow-up research of Kaposvár University (n=123)



Figure 2

Have you found a job after receiving your degree in 2009?



Source: Career follow-up research of Kaposvár University (n=287)

During their studies men living in smaller towns and villages often found and take a job. Probably, because of the less income of their family, they had to work to finance their studies. Students graduated in colleges have been employed earlier, than students with a degree from a university. Women started their professional career earlier after getting their diploma.

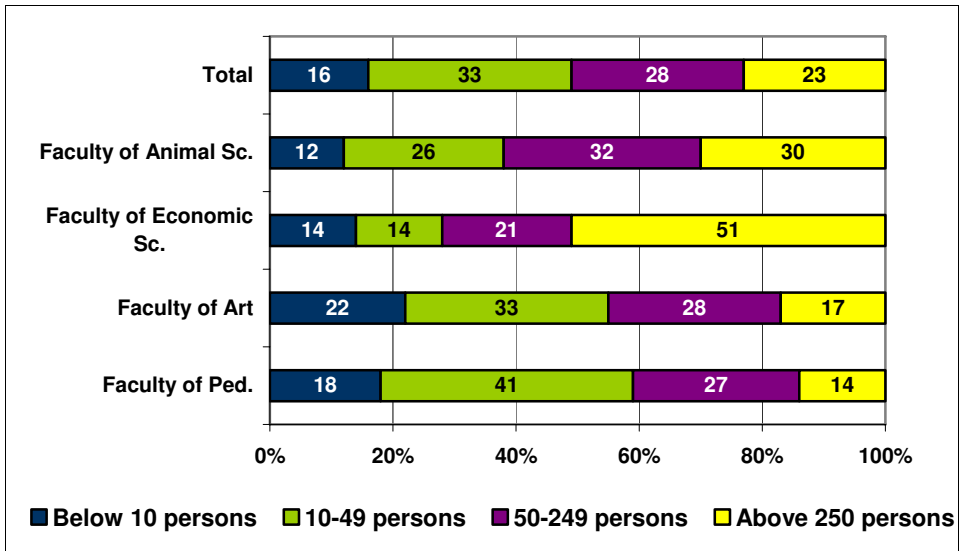
More than seventy five percent of employed persons work at their first workplace a year after having their qualification. In two years time this rate goes down to fifty eight percent. The shorter professional career they have, the harder to change workplace more times. Students of Faculty of Economic Science alternate the least among employers.

Three-quarters of questioned persons are employed full time. Graduated students of the Faculty of Arts become most often entrepreneurs. This type of activity comes from their nature of profession. Students of the Faculty of Pedagogy and Animal Science could stay on their professional line the longest. At the beginning of their career most graduated persons have been employed at municipalities and institutions run by the state, except students graduated in 2009, which were hired by private companies at first place.

Most of the students graduated at Kaposvár University are employed by Hungarian and mostly local employers, which is also caused by the lack of foreign language knowledge among graduates. Students of Faculty of Arts work mostly in the capital. *Figure 3* and *Figure 4* shows the size of the employers.

Figure 3

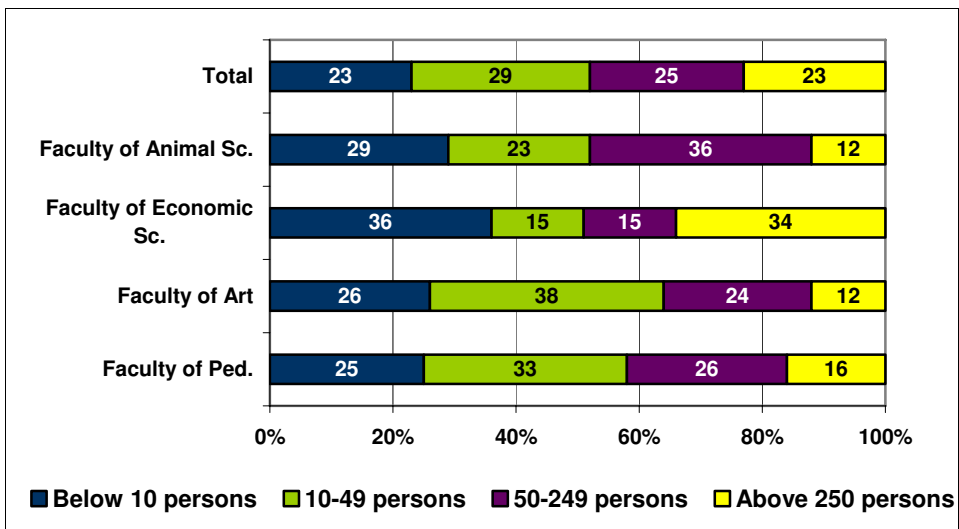
Size of employers of graduated students in 2007



Source: Career follow-up research of Kaposvár University (n=122)

Figure 4

Size of employers of graduated students in 2009



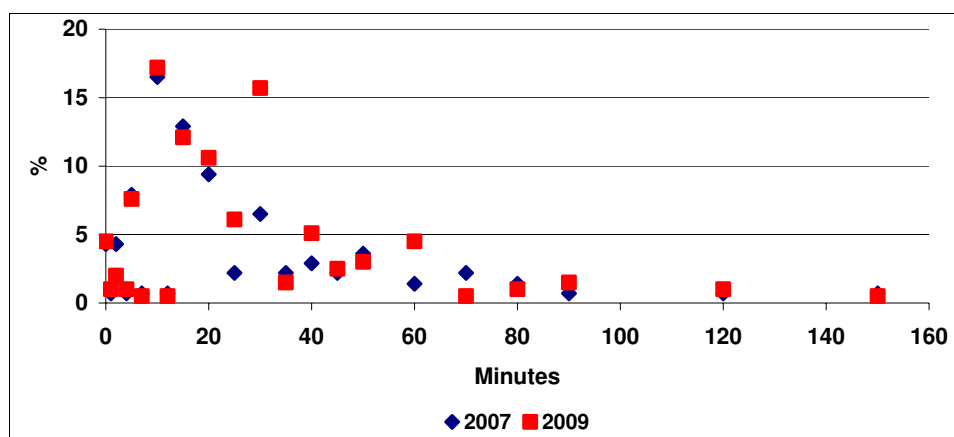
Source: Career follow-up research of Kaposvár University (n=201)

Women are employed mainly at small enterprises, while men found a job more often at medium size enterprises or large companies. During their studies students prefer bigger size of employers while after graduating they find a job easier at smaller enterprises. Sixteen percent of students graduated in 2007 and ten percent of students having their degree in 2009 work on management posts. Career starters of Faculty of Animal Science and Economic Science were promoted earlier.

Questioned persons travel twenty minutes in average to reach their workplace. Longer distances are realized near Budapest and among those, who are employed as advisors (*Figure 5*).

**Figure 5**

**Average time to reach the workplace**



Source: Career follow-up research of Kaposvár University (n=118, 198)

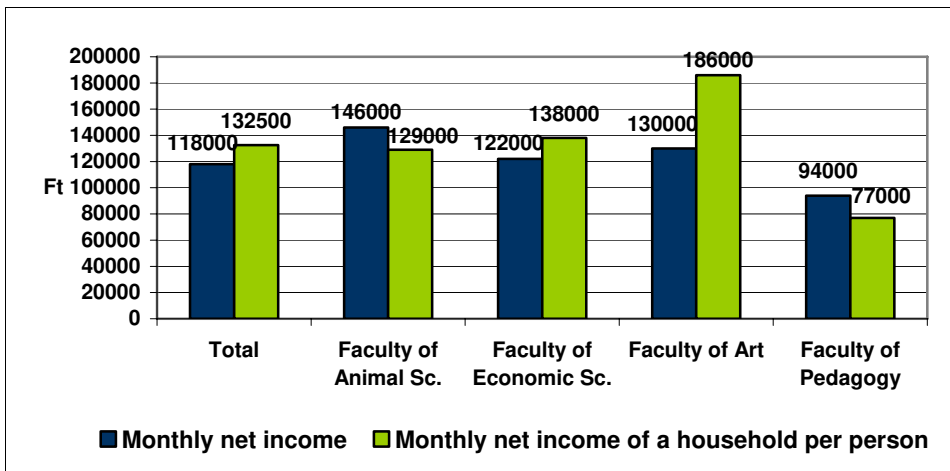
More than sixty percent of the jobs of graduated students connect with their qualifications completely or nearly completely. Faculty of Pedagogy and Animal Science reach higher percentages in this field than other faculties. Less than twenty percent of the employees work at a second job.

The monthly net income of graduates' household is relatively high, because after starting their professional life, they move to a separate residence from their parents and do not bear any child yet (*Figure 6* and *Figure 7*).

Households of students graduated in 2007 have higher amount of monthly net income than households of students graduated in 2009. This difference is more than 40,000 forints which can be explained by the longer professional career and the higher personal monthly incomes. Career starters of Faculty of Animal Science earn the highest monthly salary. In 2007 Faculty of Arts possessed the second place, while in 2009 Faculty of Economic Science was on the second place. Average net income of students graduated in 2007 is 118,000 forints, but this amount is 97,000 forints among persons graduated in 2009. The maximum net income is 300,000 forints, which is earned abroad. Income of men is still higher in 2007 and also in 2009 than income of women.

Figure 6

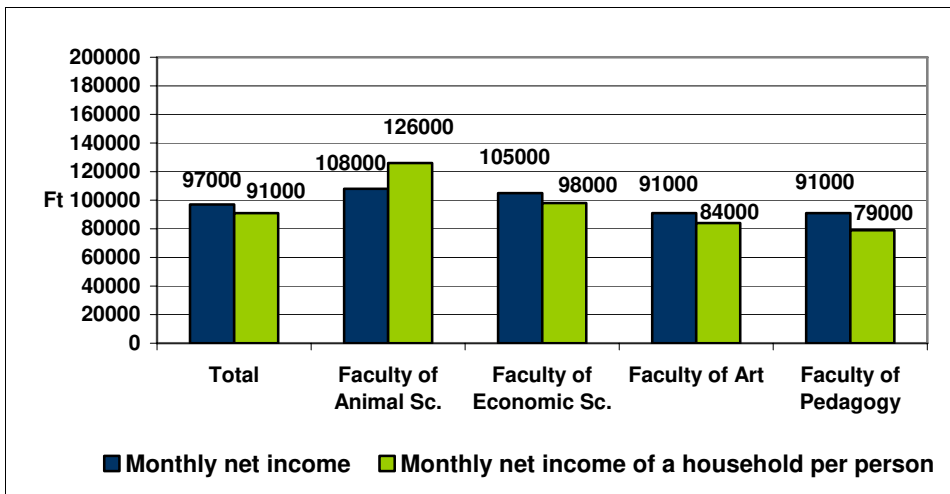
How much is the monthly net income of your household (2007)



Source: Career follow-up research of Kaposvár University (n=139)

Figure 7

How much is the monthly net income of your household (2009)



Source: Career follow-up research of Kaposvár University (n=312)

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## MULTI-OBJECTIVE GENETIC ALGORITHM FOR SUSTAINABLE OPTIMALIZATION

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### ***ABSTRACT***

*The long term, large scale, hybrid, multidisciplinary models of Computational Sustainability requires new optimization methodologies. In achieving optimal process design and control we have to choose the “best” from various structures and parameters. The usual objectives are minimal cost or maximal profit. One of the accepted approaches is to find the exact optimal solution for a simplified model formulated by sophisticated mathematical constructs like MINLP. Another approach is based on the qualitative knowledge of engineers and described by heuristic rules and rule-based decision algorithms. Optimization for sustainable development cannot often controlled by a single, aggregated objective. We have to consider multiple objectives according to short, middle, or long time horizons. Besides the economic goal function, we have to consider the environmental impacts (e.g. the necessary recycling, etc.). This needs detailed model-based multi-objective process development. Accordingly, in our work we use an engineering approach that focuses on the search for “good enough” solutions, based on the most detailed models. In the solution of practical problems, priority ranking of the constraints and evaluations combined with a new grid method helps to focus on the very part of the Pareto-front where the good solutions are found. The elaborated, multi-objective genetic algorithm supports effective coding and the multi-criteria evaluation of sustainable processes.*

Keywords: meta-heuristic, multi-criteria, development, modeling, optimization

### **INTRODUCTION**

In the conventional optimization methodologies the model of the investigated problem used to be simplified to the formalism of a mathematical construct that makes possible the determination of the exact optimum.

Considering the importance of the details in the engineering problem solving, in the past decades increasing effort has been made for the possibly most detailed model based optimization. The dynamic simulation tools for the various processes developed rapidly, while the optimization of more and more complex hybrid (continuous/discrete) models became intractable in the development of in-parallel optimization methods. Another actual challenge is the optimal solution of the large scale, long term processes of changing structure with increasing complexity (Csukás and Balogh, 1998).

Having recognized these difficulties, the inexact, heuristic and/or evolutionary methods of the Artificial and Computational Intelligence became more and more

important (Siarry, 2008). In the case of an inexact approach there is no guarantee for the determination of the absolute optimum. This disadvantage is compensated by the fact, that good enough solutions can be determined on the basis of the necessarily most detailed models. One of the heuristic optimization methods of the Computational Intelligence is the Genetic Algorithm (Holland, 1975). This work is characterized and motivated by the demand on optimization detailed and/or large scale hybrid problems, coming from various field of application, which could not be solved with the available tools (Balogh, 2010). Moreover, in addition to the economic objective, we have to optimize according to a number of natural criteria, or we have to combine the economic and natural objectives. The in-parallel developing generic simulation method more and more tolerates the arbitrary discrete and continuous changes. In addition, we considered also the general tendency of continuously increasing computational demand for the simulation of the possible solutions.

## MATERIALS AND METHODS

In the present research and development work many open source code software development tools, as well as the collaborating generic simulator, developed by our research team were applied. For the realization of the macro granularly parallel evolutionary development, a computer cluster was built and configured. Accordingly, the methods applied for the development and testing of the elaborated genetic algorithm were the followings:

- software tools, applied for the development of the genetic algorithm;
- the generic simulator, collaborating with the genetic algorithm;
- hardware and software tools, applied for the realization of the macro granularly parallel operation.

The most important open source software tools, used for the development of the genetic algorithm were the followings:

- fox toolkit ([www.fox-toolkit.org](http://www.fox-toolkit.org));
- plplot ([www.plplot.org](http://www.plplot.org));
- tclap (<http://tclap.sourceforge.net>);
- c++ compilers: g++ (<http://gcc.gnu.org>), mingw ([www.mingw.org](http://www.mingw.org)).

For the macro granularly parallel execution of the evolutionary simulations, a PC cluster, containing 16 units was built. The operation of the cluster was solved by the adaptation of the OpenSSI ([www.openssi.org](http://www.openssi.org)) software.

Regarding the demonstrated example applications:

- the programs of the benchmark test tasks has been written by myself (Balogh, 2010);
- the simulation of the detailed example applications has been solved by the generic simulator based on the Direct Computer Mapping (Csukás, 1998) of processes, developed in the research school of process informatics, using the version running under Windows® with Excel® interface.

## **RESULTS AND DISCUSSION**

The methods, applied for the economic optimization of complex systems in practical problem solving, have to satisfy many criteria. One of the two most important demands is supporting of the multi-criteria evaluation in decision making. The other is, the capability for the representation of the complex possibility spaces, characterizing the economic and/or technological processes.

In the development of the genetic algorithm, prepared for the multi-criteria economic optimization, was motivated by the above criteria.

Supporting of the multi-criteria decisions has a keynote role in the elaboration of the new algorithm. In the solution we made possible fitting the preferences of the decision maker by each of the 'a priori', interactive and 'a posteriori' methods. In the declaration of the evaluating criteria, we can define the optional properties. These properties are the priority, as well as the apparent lower bounds of the given objective. By means of these properties the decision maker can guide the optimization process to the preferred regions of the Pareto-front.

The flexible possibility for the unified consideration of constraints, priorities and objectives, makes possible the application of a ranked fitness calculation, according to a modified Pareto-dominance in the multi-criteria genetic algorithm. The ranking can be used both for a single objective and in the multi-criteria evaluation with the possibility of the treatment of conditions. There are various strategies for the fitness calculation, and the majority of the published methods can be applied. For example we can use the number of the dominated variants or the number of the variants, dominating a given variant, as well as the depth of the Pareto-front. In the calculation of the dominance, first the conditions are evaluated one after the other. Optionally, a priority ranking can be defined for the conditions. This makes possible the combined use of the condition violations (i.e. how many conditions are violated by the given variant), followed by the consideration of the summarized or maximal measure of constrain violations (i.e. how long is the distance from the awaited range).

The evaluating criteria have a priority ranking, too. In a given priority group, first the fulfillment of the objectives are compared (i.e. the variants that fulfill the objectives are better). Next, the variants that fulfill the objectives are compared according to the value of the criteria. The procedure of the calculation is illustrated in *Figure 1*.

The necessary conditions for the good estimation of the Pareto-front are those proposed solutions, which have a uniform distribution along the front. Therefore, in addition to the fitness values, the variants are characterized by a crowding parameter.

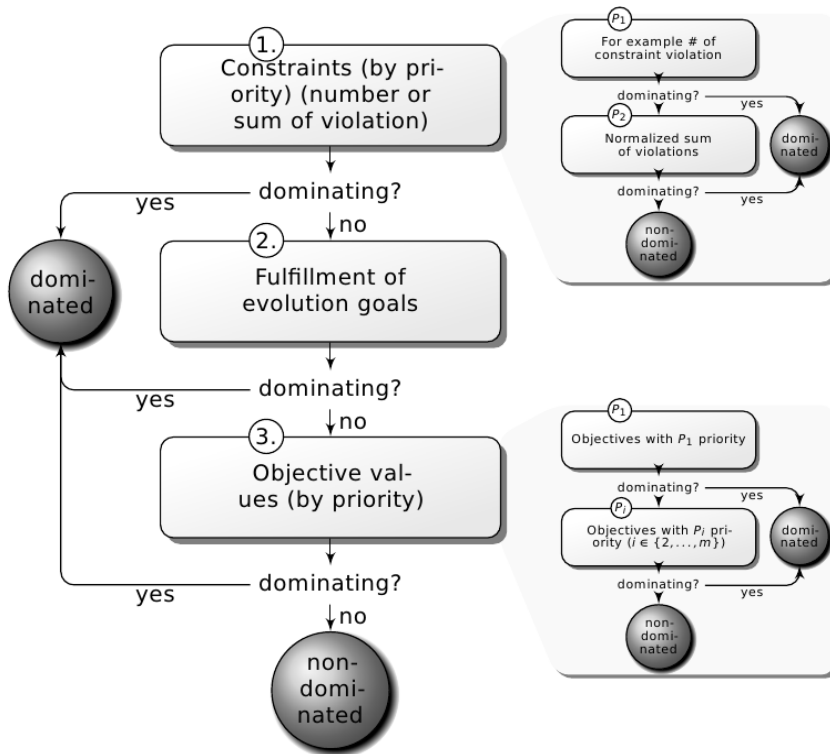
In the applied selection algorithm, this crowding parameter was used for the selection and replacement of the comparison of the parents for the variants, having the identical fitness values. This helps the uniform distributed identification of the Pareto-front.

Because of the small population size, the number of the non-dominated solutions in the last population is also small. Consequently, it is advantageous to save all of the known Pareto-optimal solutions in outer archive storage. The size of the archives can be configured freely. Having reached the maximal size of the archives, the saved Pareto-optimal variants are deleted, according to their crowding parameters.



Figure 1

The calculation of modified Pareto-dominance



As an example for the use of multiple natural and economic criteria see the so-called Single Switch Server problem (Perkins and Kumar, 1989; Agarmal et. al., 2002; Bánkuti and Csukás, 2003) in Figure 2.

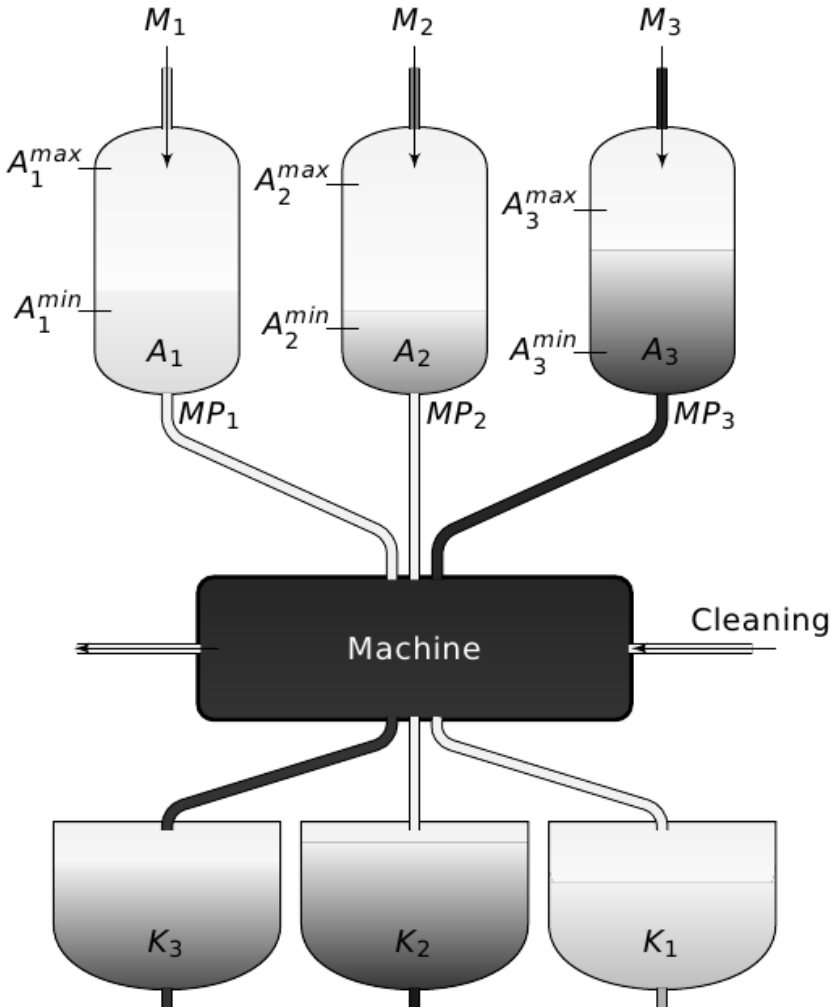
This is one of the simplest discrete / continuous, switched, hybrid dynamic system. The suppliers send materials in the buffer tanks  $A_1$ ,  $A_2$  and  $A_3$  at constant flow rates of  $M_1$ ,  $M_2$  and  $M_3$ , respectively. Machine can process any one material at a time at rate  $MP_1$ ,  $MP_2$  and  $MP_3$ . The level of materials changes in the buffers, however there are determined minimal and maximal levels. A material specific setup time is incurred each time machine switches to different material. The goal is to design a switching strategy, which satisfies various single or multiple objectives, e.g. maximal production, minimal setup and waiting time, minimal buffer levels, etc. There is an obvious interaction between the continuous and discrete (logic) components, i.e. it is a simple prototype of the hybrid dynamic systems.

The estimated three dimensional “full” Pareto front of three natural evaluation criteria can be seen in Figure 3 Evaluation criteria were the following:

- $f_1$ : sum of production (maximize)
- $f_2$ : sum of buffer levels (minimize)
- $f_3$ : sum of setup, waiting and cleaning times (minimize)

Figure 2

Single Switch Server problem



Usually the decision maker does not want to see the “full” Pareto front, but only a region of it. The result of excluding the excessively low production (less than 50000) visualized in *Figure 4* and *Figure 5*.

In this studied example we performed a single objective economic evaluation with estimated cost coefficients. The location of that solution with maximal profit (the larger black point on the Pareto front) illustrated in *Figure 3* and *Figure 4*.

Example of constraints handling of the elaborated genetic algorithm can be seen in *Figure 3* and *Figure 5*. The larger gray point represents a solution with constrained production structure.

Figure 3

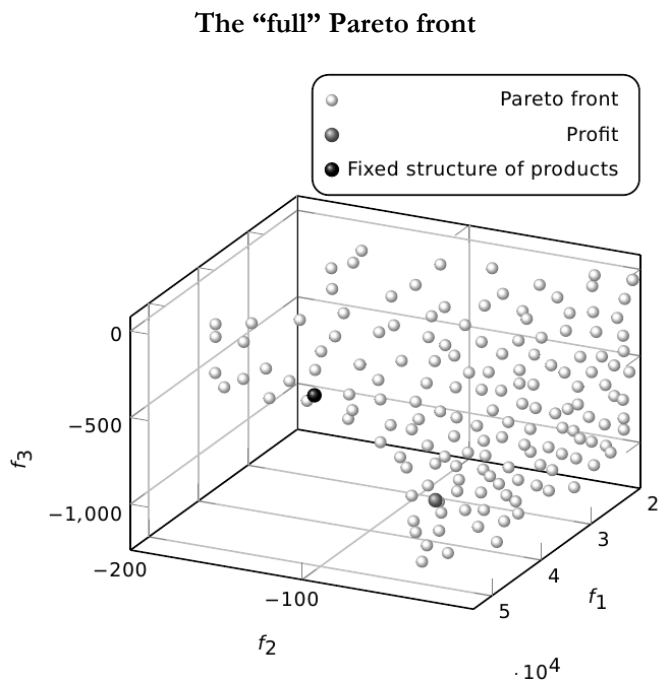
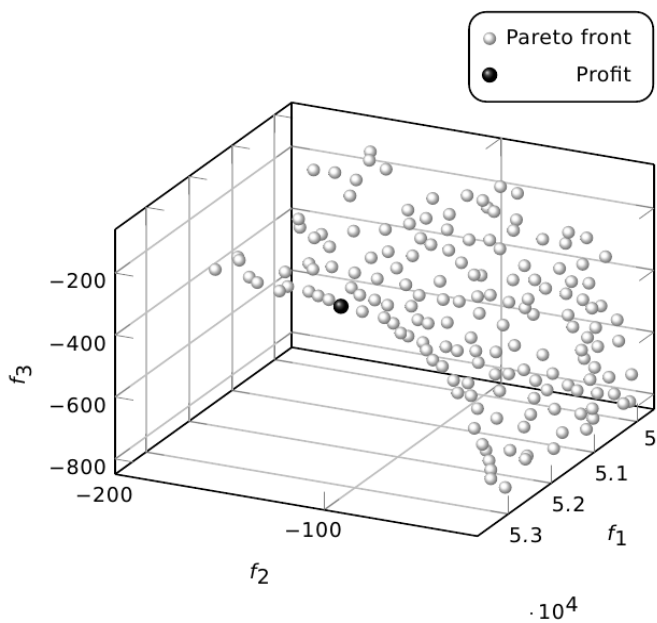


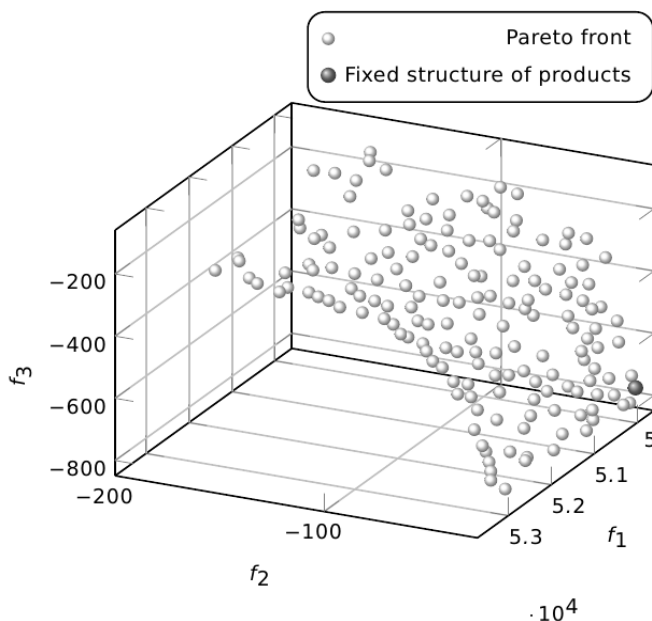
Figure 4

**Maximal profit solution on narrowed Pareto front**



**Figure 5**

**Constrained solution on narrowed Pareto front**



**CONCLUSIONS**

Considering the above described research results, as well as the experiences, obtained from the application of the continuously developing genetic algorithm, the most important conclusions are the followings:

One of the lessons, coming from the, practical optimization and identification problems was that it is not possible or it does not worth to aggregate the evaluation into a single objective function. In optimization, almost everybody wants to make an economic evaluation (i.e. minimizing the cost or maximizing the profit), however the data for the calculation of the economic goal function are not known. It is a typical case, when we have to optimize one, by-itself also complex, part of a large technological process, consisting of many steps. The economic parameters of the input and output materials are often not known. Consequently, the study ought to be extended to a greater system, consisting of this part. On the other hand, the field experts can declare very good natural objective functions. Nevertheless, the ongoing methodological development tends to bridge the existing gap between the technological and economical processes, and this makes possible the more and more correct economic evaluation. In accordance with the results, obtained from the logistical example in the present work, the combined application of the economic and natural evaluations seems to be a feasible method.

The experiences, obtained with the continuously developing and presently further developed, integrated genetic algorithm, proved that the applied coding and

operators, as well as the archived storage of the investigated variants support the optimization process with small population and generation number.

The optimization of the practical tasks with great computational demand for the evaluation can be solved by the macro-granularly parallel simulation and evaluation of the variants. The method, implemented in a PC cluster, can accelerate the genetically controlled evolutionary process almost proportionally with the number of CPUs in the cluster.

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## GREEN TAXES - AN INSTRUMENT OF THE SUSTAINABLE DEVELOPMENT IN THE EUROPEAN UNION

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### **ABSTRACT**

*Many countries supporting Agenda 21, including the European Union and its Member States, recognize that much action is necessary to improve the environmental situation. During the last decade, the environmentalist movement has renewed its attack on the desirability of economic growth and has redoubled its call for drastic measures to ward off environmental catastrophe. Because of the threats implicit in the long-term effects of global warming, damage to the ozone layer, and the loss of biodiversity, modern countries must employ economic instruments for environmental protection and natural resource management. The increased use of green taxation has shown positive results in some countries through a shift from labor taxation towards pollution or resource-use taxation. Improved environmental indicators clearly underline the necessity to adopt this instrument in the future. The aim of that paper is to show the importance of using green taxes as an economic instrument to integrate an environmental regulatory regime. Environmental taxes can be divided into four broad categories: energy, transport, pollution, and resource taxes. Energy taxes are by far the most significant, representing around three quarters of the environmental tax receipts and around one twentieth of the total taxes and social contributions. Using statistical data, this paper will analyze and compare levels of green taxes in the European Union (for each of the member states), their evolution, and their impact upon the natural and social environment.*

Keywords: green taxes, sustainability, external effects

### **INTRODUCTION**

Since the early 1970s and as reflected at the 1992 Earth Summit, sustainability and respect for the environment in the context of development have become a global political goal, marked by the following international agreements: Agenda 21, the Rio Declaration on Environment and Development, the Statement of Forest Principles, the United National Framework Convention on Climate Change and the United Nations Convention on Biological Diversity. The Agenda 21 plan of action is especially seen as a global consensus on the road map towards sustainable development (*Global Environmental Outlook*, 1997). It is generally recognized in Europe that government actions needed to protect and improve the environment are necessary when activities of private enterprises have „palpable external effects that are not internalized through market processes.”

Without a strong and adequate state intervention, the governments concluded that, there is a risk if private enterprise production methods and consumer behavior

will continue to burden the environment „in ways that are incompatible with the interests of the national economy” (German Federal Ministry of Finance, 2001).

One major approach to resolve this issue was to introduce tax instruments for specific environmental reasons. Ecological taxation normally means applying a cost reflecting the environmental impact caused by production, use and waste of a certain product, during its entire life cycle.

The European Union and many of its Member States have gained experience in the use of tax and fiscal policy tools, to pursue environmental goals. The introduction of taxation instruments is integral for sustainable development, being part of the Ecological Fiscal Reforms of each country.

One of the most common policies used to tackle the problem of pollution is the so-called green or environmental tax. Green taxes (also called „environmental taxes” or „pollution taxes”) are excise taxes on environmental pollutants or on goods whose use produces such pollutants.

The term „environmental taxation” is used for varied charges and from different administrative levels and actions. It can span from water charges, waste collection charges, landfill tax on a local level, to an overall energy tax or specific chemical tax on national or supranational level. The definition of an environmental tax commonly applied by the European Union, the OECD and the International Energy Agency (IEA) is a tax whose base is: „a physical unit of something that has proven specific negative impact on the environment (Eurostat, 2004).

Economic theory suggests that taxes on polluting emissions will reduce environmental harm in the least costly manner, by encouraging changes in behavior by those firms and households that can reduce their pollution at the lowest cost.

Usually, these taxes are placed on a product that damages the environment, or on a complementary product. There are several groups of environmental taxation in use, since the mid-90s in the European Union at the Member States level. These cover energy taxes (including excise duties on car fuels and carbon dioxide taxes), followed by transport taxes, whereas taxes on pollution and resources, are still of minor importance in terms of revenue raised. The concrete examples of green taxes which proved to be a productive solution, includes: input taxes for fossil fuels and uranium, vehicle excise duty, landfill tax, the new carbon tax, energy taxation, electricity taxes for end-users and careful tax rebates for industrial installations taking part in emissions trading. The Irish Government also recently introduced a tax on plastic bags in a bid to reduce consumption and encourage recycling. All these tax instruments must be designed carefully and their effect on the environment has to be monitored.

Environmental taxation can be used as one of the most effective tool in speeding the necessary transition from the environmentally harmful use of fossil fuels to renewable sources of energy, energy efficiency and rapid increase of use of renewable and climate-neutral energies. The green tax models are just one important tool in a necessary range of policy instruments. The increased use of green taxation has shown positive results in some countries through a shift from labor taxation towards pollution or resource-use taxation. Green taxation can lead to technological modernization and a shift in consumer behavior. It can be applied on different levels, from local to international.

## **MATERIALS AND METHODS**

Green taxes began with the simple aim of discouraging people from damaging the environment by making them pay for using natural resources. For example, burning fossil fuels in power stations causes acid rain; it damages the environment and should be taxed. Raising the tax on motor fuel would encourage people to use more energy-efficient cars or to use them less, or both. Taxing the dumping of waste in landfill sites would encourage recycling and alternative ways of dealing with waste and might help to reduce the total amount of waste created, and so on.

That original aim still applies. But it is no longer the only one. Green taxes are now seen as part of a wider restructuring of taxation – eco-tax reform – which will encourage not just environmentally sustainable development, but also will assure better economic performance, more jobs and greater economic justice within and between the nations. One reason green taxes make sense from an economic, social and environmental point of view is because they tax „bads” instead of „goods”.

However, critics charge that green taxes are regressive because they hit poorer people relatively harder than richer. For example, if a tax on household energy raised the cost of heating, cooking and lighting, poor people would find it harder to pay and harder to invest in energy efficiency to reduce the higher rates. The regressive effect would be greater if green taxes replaced taxes on incomes and profits – which many poorer people never had to pay in the first place.

At the same time, critics consider that subsidies for emissions reductions do not have the same effect as emissions taxes. Subsidies increase the benefits of belonging to the subsidized group and may result in more polluters, each polluting less, with no net decrease in emissions.

One proposed green tax that has recently gained favor is the carbon tax. This would impose an excise levy on the carbon-based content of fossil fuels as a means of reducing greenhouse gas emissions that contribute to global warming. Estimates vary widely of the external costs associated with these fuels, whose combustion releases carbon dioxide into the atmosphere. In a recent review of twenty-eight published studies, the median incremental damage estimate was \$14 per ton of carbon, but a handful of estimates found damages above \$350 per ton.

Instead of these critics, the environmental taxes have a lot of advantages. The main advantages of the environmental taxes are:

1. They can provide incentives for the behavior that protects or improves the environment;
2. Can enable environmental goals to be achieved at the lowest cost and in the most efficient way;
3. By internalizing environmental costs into prices, they help to signal the structural economic changes needed to move to a more sustainable economy;
4. They can encourage innovation and the development of new technologies;
5. The revenue raised by environmental taxes can also be used to reduce the level of other taxes, which can help to reduce distortions in the economy, while raising the efficiency with which resources are used.



6. Pollution can be regarded as a cost of producing goods and services. A pure environmental tax aims to ensure that polluters face the true cost of their activities by charging them for the damages caused to others.
7. Direct taxes on emissions are economically efficient because they give polluters an incentive to reduce their pollution up to the point where further reduction would cost more than paying the tax. At the same time, direct emissions taxes are also cost-effective because they ensure that pollution reductions are undertaken by those who can do so most cheaply. Firms that find pollution abatement costly will choose to continue to pollute and pay more tax, while those who find it less costly will cut their pollution rather than pay more tax.

## **RESULTS AND DISCUSSION**

The introduction of the environmental tax reforms gained increasing support during the 1990s. The basic idea was to shift the tax burden from the production factor labor towards the use of natural resources and environmentally harmful goods and activities. With the publication of *Jacques Delors'* (1993) White Paper on Growth, Competitiveness and Employment, the idea of such a fiscal reform became politically attractive, as it offered a mean to promote simultaneously growth, jobs and a better environmental quality.

Similar ideas have been later endorsed also in many strategies and actions of the European Union. In the Member States the ideas of green tax reforms have met varying success. Among others, Denmark, Finland, Germany, the Netherlands, Sweden and the United Kingdom have introduced the elements of green tax reforms over the last decade. They have increased environmentally related taxes and used additional tax revenues to finance tax cuts on labor or personal income, with the intention to boost employment. At the same time, they have taken measures, in the form of rate reductions or refund schemes, to protect producers from any negative effect on competitiveness arising from increases in input costs. For example, the Czech Republic introduced an environmental tax reform in 2008, which increased and would increase the tax rates of most energy products over the period 2008 – 2012 and would use the tax revenues to support the state employment policy. Despite this interest, environmental tax revenues have not been growing in recent years at the EU average level. In 2008, revenues from environmental taxes in the EU-27 (in the GDP-weighted average) accounted for 2.4% of GDP and for 6.1% of total revenues. Compared to 1999, when environmental taxes reached their peak level (2.9% in relation to GDP and 7.0% out of total taxation), the fall is quite significant.

We can observe a steady fall in the level of environmental taxes from 2004 onwards. This development measured at the weighted EU average level hides, however, substantial differences between the Member States. In fact, the share of environmental taxation out of total taxation has increased since 1995 in a number of the EU Member States (Denmark, Estonia, Latvia, Netherlands, Austria, Poland and Slovakia), but remained stagnant or decreased in the others. Many big Member States figure in the last group, which explains the falling trend of the EU weighted

average. In new Member States, the increase has been largely driven by the EU accession process, although, some of them made use of the occasion to increase energy tax levels beyond the strict requirement of the EU provisions. At the same time, in some old Member States environmental taxes have been increased recurrently, often as a part of broader fiscal reforms.

To understand the fall of environmental tax revenues in relation to GDP it should be kept in mind that environmental taxes are levied per unit of physical consumption and usually fixed in nominal terms. Hence, unlike ad valorem taxes, their real value in relation to GDP tends to fall, unless they are adjusted for inflation or otherwise increased at regular intervals. The problem could be easily solved by indexing the nominal tax rates to inflation, but only one Member State, Denmark, uses this option. There may be several reasons for the real value erosion of environmental taxation. First, energy demand has a tendency to grow slower than the income, which implies that the share of taxes paid on energy goes down, when the economy grows. Secondly, energy tax increases in recent years may have also reduced energy consumption and thus eroded the tax base of energy taxation, although the expenditure on energy as such may not have decreased. Thirdly, the governments may be simply unwilling to increase the tax rates on products, which affect the energy costs of households and industry. There was no compelling cause to do so either, as the EU minimum rates on mineral oils was kept constant from 1992 to 2004, when the Energy Tax Directive (2003/96/EC) came into force. The growing popularity of non-fiscal instruments such as emissions trading and high world prices for oil in the early 2000s might also have led to a reduced appetite for additional environmental taxation, at least as far as energy is concerned.

From a historical point of view, the fiscal instruments of „green taxation” have become established in the European Union with front runners in Western Europe, EU-15 and adaptation to Southern and Eastern Europe.

The European Environment Agency (EEA) has published two reports on the use of environmental taxes in EEA member countries, in 1996 and 2000. Chapters in the annual EEA environmental signals reports in 2000 and 2002 provide further information on the use of taxes and charges, their revenues and emerging environmental tax reforms.

August 2003 figures published by Eurostat show a general trend since 1990 toward increases in green taxes, accompanied by a reduction in taxation on labor.

In July 2005, the European Commission proposed that all EU states should increasingly base car taxes on CO<sub>2</sub> emissions. In 2006 the EEA Report „Using the market for cost-effective environmental policy” was published. This report presents an assessment of the main developments in the use of market-based instruments in European environmental policy. The EEA Technical report „Market-based instruments for environmental policy in Europe” is a longer in-depth version of the report „Using the market for cost-effective environmental policy”.

The EEA published the report „Effectiveness of environmental taxes and charges for managing sand, gravel and rock extraction in selected EU countries” in 2008.

Market-based (or economic) instruments are being used increasingly in environment and sustainable development policies.

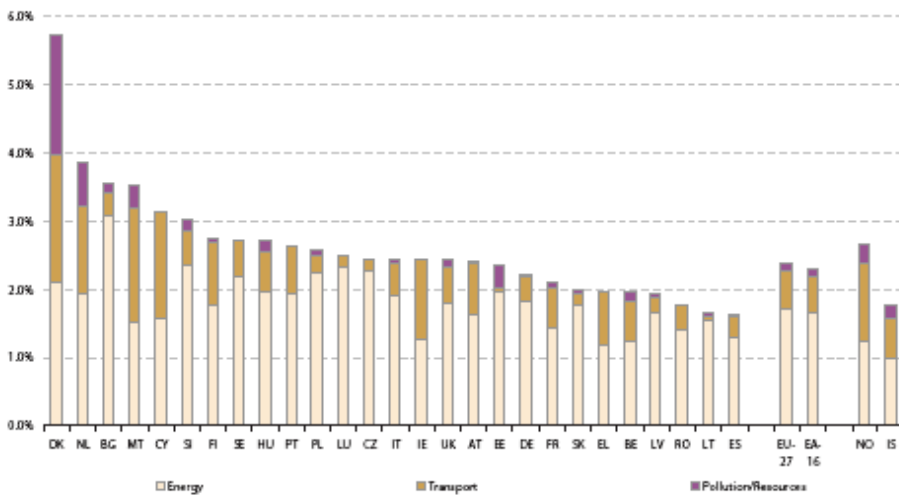
The EU introduced its first market-based instrument in January 2005. In the context of its climate change policy, the EU Greenhouse Gas Emissions Trading Scheme operates tradable carbon dioxide allowances helping to reduce emissions in a cost-effective way. The European Commission has also adopted a Directive establishing minimum tariffs for energy and energy products. The aim of the directive is to curb energy use and emissions.

Environmental taxes can be divided into four broad categories: energy, transport, pollution and resource taxes. The situation concerning environmental taxation and energy taxation differs broadly in the EU Member States. This results from traditional differences of tax schemes, sovereignty of EU Member States in the most important field of taxation. Energy taxes are by far the most significant, representing around three quarters of environmental tax receipts and around one twentieth of total taxes and social contributions. In the EU-27, transport taxes correspond to, on average, slightly less than one quarter of total environmental tax revenues and 1.4% of total taxes and social contributions (in the weighted average). The remaining two categories, pollution taxes and resource taxes, raise only a marginal amount of revenue: together they make up just 5% of total environmental taxes.

Figure 1 shows the environmental tax-to-GDP ratio by Member State and breaks it down by type of tax.

**Figure 1**

**Environmental tax revenues by Member States and type of tax, 2009,  
in % of GDP**



Source: Eurostat, 2010

The relative importance of each type of green tax varies across countries, but in general, most Member States tend to fall in a band ranging from 2% to 3% of GDP, or slightly higher. Only four Member States show levels below 2% of GDP,

while in four other countries environmental tax revenues exceed or are equal to 3.5% of GDP. At 5.7% in 2008, Denmark displays by far the highest level of green taxes followed by the Netherlands (3.9%). The lowest environmental tax revenues in relation to GDP are instead found in Latvia, Lithuania, Spain and Romania, all below 2% in 2008. The predominance of energy taxes is common to most Member States.

However, in some countries, the contribution of transport taxes is significant: for instance, in Ireland, Cyprus and Malta they account for nearly half of environmental taxes. In Denmark, transport taxes also raise significant tax revenues, but on account of the high level of pollution and resource taxes in that country, constitute somewhat less than a third of environmental taxes. The high level of pollution and resource taxes in Denmark is largely due to the hydrocarbon tax, which is a tax on the profits obtained from the extraction of hydrocarbon and therefore tends to increase proportionally to those profits.

## **CONCLUSIONS**

The green taxation reform may offer the opportunity for a real social and economic change, all over the world. Environment, climate change and sustainability are the key themes of the new taxation strategies, which encourage and support the necessary transition to a greener economy.

The increased „greening” of the taxes over recent years has presented a new set of challenges for the businesses. Taxpayers need to understand the taxes that apply to them, to comply with the various reporting requirements and to ensure that the environmental tax effects of business decisions are considered upfront. A significant number of businesses are still largely unaware of how they are affected by the environmental taxes – but as the impact of these taxes continues to grow, we expect that more and more businesses will consider taxes as a reason to „think and action green”. It is not just the environmental taxation the only one that encourage taxpayers to act in a more environmentally responsible fashion – the traditional tax framework is increasingly being changed to reward the „green” behaviour.

More generally, the economic nature of taxes means that any tax change may result in an environmental impact. These impacts can often be unintended. This illustrates the difficult balancing act faced by the Governments in setting policies and how important it is for policymakers to consider the environmental effects of any tax or economic policy changes.

Perhaps, the only certain concept for the future of the environmental changes is the further change. The Governments have already signalled potential areas where they intend to expand their environmental policies.

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## SUSTAINABLE COSMETICS: A MAJOR INSTRUMENT IN PROTECTING THE CONSUMER'S INTEREST

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### **ABSTRACT**

*Recently, many alarms have been raised in connection with cosmetics consumption. Only a small portion of consumers realize that hygiene and beauty products are responsible for their health. All consumers who are really concerned about their health must know that many substances used in these products are dangerous not only for the environment, but also for the integrity of their bodies, because they are absorbed by the body through the skin. Most manufacturers use chemical cocktails in their cosmetics and beauty products. These „cocktails” are not only damaging to the skin but also to our everyday environment. Consumers must be able to make an informed choice regarding which manufactured cosmetics to buy and to use every day. The main purpose of this paper is to analyze the green cosmetics market, underlining the relationship between green cosmetics, firms' environmentally-friendly strategies, and consumer protection policies. Using a comparison between green and synthetic cosmetics that shows the high risk involved in using a lot of dangerous chemicals contained in the latter, the article attempts to build up environmental awareness and interest among consumers in healthy and safe consumption, consumption that is sustainable in nature and not harmful to their own health.*

Keywords: green marketing, natural cosmetics, environmental awareness, consumer protection

### **INTRODUCTION**

Nowadays, managing businesses so as to minimize the adverse impact on the environment attracts an enormous amount of media and public attention. Green marketing of products and services is an important development in the context of the contemporary emerging economies. By adopting resource conserving and environmentally-friendly strategies in all the stages of the value chain, the firms can satisfy the growing environmental concerns of the humanity.

Concerns over the environment, pollutants, clean air and water, safe products and foods, are realities which determined a series of disasters during the 1980s: decimation of the Black Forest by acid rain, accidental release of toxic chemicals into the Rhine River, spread of a nuclear cloud from Chernobyl etc. That's why The Green Movement has put unexpected pressure while the EC has passed more than 200 regulations and directives relating to all aspects of the environmental pollution.

The last three decades have increased the public awareness of environmental issues. The environmental awareness or „green movement” has made „greening” an important issue for managers and marketers. Many managers view aspects of the

green movement as possible niches for product and marketing efforts. These behavior attempts to follow the three R's: reduce, reuse and recycle (*Coddington, 1990*).

However, in the West, business firms face social and legal pressures to adopt environmentally-friendly business strategies. At the same time, many corporations responded to these pressures and adopted environmentally-friendly strategies.

In that way, Green became first a marketing tactic and then, with time, it evolved into something approximating to a religion, with nearly every public act of the company closely geared to saving, nurturing or restoring the environment. But Green means also a safe life, a good health, because it's directly related with the consumers' security. That's why it can't be deny the relationship between sustainability, the environmental issues and the consumer protection policy.

In 1991, during the negotiations to finalize the European Community, „Green” activists exerted enough influence on ecological concerns to bring changes to the EC's Cosmetic Directives too. That way, it was established an undeniably active movement to market „green products”, coming from some companies, especially in the cosmetic business, movement which sustains both: the environmentally-friendly strategies and the consumer protection interest.

Of course, Green as a concept in cosmetic product formulation is neither new nor startling. Some segments of the cosmetic industry already had a head start on the Green Game, since the business had experienced at least two waves of natural products: botanicals and fruit-based formulas in the early and mid 1970s, and a second similar but stronger phenomenon that began in the mid-1980s and has carried through today.

Caswell-Massey had been almost single-handedly carrying the message for decades, selling cucumber-based soaps and pineapple hair rinses from the shelves of its Lexington Avenue apothecary shop, to a special clientele. Providing strong motivation during the second wave from Europe was The Body Shop, which used the Caswell-Massey concept to develop a wide range of products in simple packaging for sale, in stores devoted to the concept of „natural” or „environmentally friendly” cosmetics, bath products and fragrances. Minimalist wastes of resources were part of the picture, a new image of a company philosophy that encouraged the environment protection strategies. Most of the attempts at capitalizing on the green movement have been focused on recycled products and environmentally friendly consumer products and packaging.

As is pointed out in Ottman's book, „...is about more than simply marketing products as green. It's about ensuring that those products genuinely are green... ensuring that the entire company is green. This process doesn't begin in the marketing department, it ends there.” But what justification can there have been for such a profound change in the corporate awareness of the environment as a marketing strategy? Ottman opines that the Three Mile nuclear power plant disaster, the Exxon oil spill, the depletion of the ozone layer and other indications of threats to the global climate - all combined in the late 1980s and early 1990s - creates an environmentally wary consumer, one especially responsive to products and market concepts that seemed to be responding to those concerns (*Ottman, 1993*).

From the “Green philosophy”, which covers an entire range of ingredients, formulations, packaging, advertising and general image, to the sustainable philosophy, there is just one step.

Sustainable is defined as using natural resources that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for future generations. Sustainable cosmetics are readily available and we all should begin to shift our focus on products which will help us to live on this planet a little better.

## **MATERIALS AND METHODS**

Nowadays, consumers have a huge choice of beauty and body care products or services available to them. When considering using these items or services, it is important for consumers to understand the health risks, the financial implications and how sustainable using them, can be.

Cosmetics help to develop a desired look, however, they do have an upkeep cost and some can contain chemicals or synthetics that could be harmful to the skin and the environment. It's proven scientifically that chemical cosmetics are linked to disorders like dermatoid allergies, cancer and birth defects.

Our skin is the largest organ of our body and a kind of litmus paper to our general state of health. The skin is a very permeable organ, so it's important to know exactly what we are putting on it.

Cosmetics are often the most chemical-laden culprits in the beauty market and they're applied directly on the skin. The chemicals aren't healthy for the consumers and for the environment. Consumption of cosmetics and toiletries is not restricted to the female population alone. Male grooming products have also emerged as an attractive segment. Skin and hair care products, face cleansers and premium shaving products are proving attractive offerings for the male grooming products market. Rising environmental concerns, growing awareness about sustaining resources, carcinogenic nature of synthetic cosmetic ingredients have propelled growth of natural and organic ingredients in cosmetics.

Because manufacturers can be tricky with their “made from coconut/corn” advertising claims, consumers have to make sure and to watch out for the worst chemical offenses in the realm of cosmetics (*Csorba, 2006*).

One of the most harmful ingredients present in cosmetics is a sort of industrial plasticizer called Phalates. Surprisingly, Phalates are not listed by manufacturers in the ingredient chart of products as they are banned in a majority of countries, excluding the United States. An average consumer is totally unaware of the presence of Phalates in the products they buy; Phalates are more prominently found in nail polish, tanning agents and hand rinse solvents.

The accumulation of Phalates in the body will eventually lead to mutation, hormone disruption and abnormalities in the reproductive tracts. An overuse of Phalates by an expectant mother can cause abnormalities in the reproductive system of the foetus, particularly of the boy child. The study reports of the University of Rochester solidify the claim that Phalates lead to irregular development of genitals



in the form of undescended testes or relatively smaller penises in babies and even to demasculinisation of the male reproductive system. A research report published by Campaign for Safe Cosmetics (CSC) tells us of an upsetting fact that two thirds of health and beauty products tested were positive for Phthalates presence.

Another hazardous ingredient which was brought in to the limelight recently was Para Hydroxy Benzoate, better known as Parabens. Parabens are used in cosmetics as a preservative to prevent microbial growth. Paraben traces are found more in deodorants and nail polish and are classified as a direct carcinogenic agent, cancer causative. The presence of Parabens was confirmed recently in breast cancer tissue. It isn't only Parabens, but other cosmetic ingredients like formaldehyde and toluenes, which are also classified under the genre of carcinogenic agents.

Thickening agents like Propylene Glycol and Polyethylene Glycol are broadly used in beauty products to alter their stability. These polymeric derivatives are widely used in the preparation of hair gel, anti-perspirants and aftershaves. The same polymers are used in brake fluids, anti-freeze solutions and oven cleaners.

More unsettling is the fact that uncommon cancers like Multiple Myeloma and Non Hodgkins Lymphoma are affiliated to the use of hair dye. Study reports by the Food and Drug Administration (FDA) and by the American Cancer Society show that hair dye users are prone to cancer four times more than non hair dye users. Similarly, anti-wrinkle lotions and creams containing Alpha Hydroxy Acids make the user's skin sensitive to sunlight and Ultra Violet Rays, eventually causing skin cancer.

Now, let's synthesize the existing hazardous substances in the synthetic cosmetics:

- *Phthalates* - these estrogen-mimickers may cause unwelcome hormonal effects;
- *Lead* - certain types of hair dye still contain it. Lead acetate has been rated by - the Environmental Working Group's database of product information - as a number 10 toxin.
- *Petroleum Products* - These substances - also called petrolatum - can be difficult to spot due to their plethora of aliases. BHA, a petroleum derivative, has been linked to cancer, developmental and reproductive damage, immune system toxicity, endocrine disruption, neurotoxicity and environmental harm. Called trioxaundecanedioic acid, toluene and 4-amino-2-hydroxy-tuolene in many common products, this ingredient might be missed because of its many names, but if we follow the "I don't recognize this and it's not easily pronounced" rule, we'll probably be able to avoid it.
- *Mercury* - Also called thimerosal, this is the controversial ingredient blamed for children's autism because of its use in vaccines. While even the vaccine industry has removed most thimerosal from most of its products, some cosmetics still contain it, especially some cake-style mascaras. Some homeopathic formulas have been tagged by Skin Deep for having mercury compounds in them, but the minuscule amounts found in these products are likely not going to cause harm.
- *Fragrance* - This ingredient is so unregulated that cosmetics companies don't even have to list what is in their fragrances. Many fragrance ingredients are chemically-based, neurotoxic and allergenic. Hundreds of different chemicals may be used in its manufacture.

- *Formaldehyde* is used as a preservative. It has been linked to cancer, cell changes, neurotoxicity, developmental and reproductive harm. It is primarily used in nail polishes and hair bleach.
- *Propylene Glycol* - used as a wetting agent, propylene glycol is found in many lotions, moisturizers and liquid foundations. It has been linked to cancer, mutagenic changes, endocrine disruptions, skin irritation and skin rashes.
- *PABA (para-aminobenzoic acid)* - use to be a common ingredient in many products, including sunscreen, until its possible carcinogenic properties were discovered. Yet we can still find it in some lip balms, shampoos and body washes. PABA has been linked to cancer, developmental damage, reproductive damage, cell level changes and neurotoxicity.

There are many other ingredients that extensive research reveals as harmful to humans (not the mention the planet). That way, the list could be endless. Thousands of cosmetics are touted in every form of media imaginable. So, how does a consumer know which one to choose? The best defense against toxic cosmetics is to read with huge attention the label of the products.

Other tips for the consumers, to counter the negative effects of cosmetics, are:

- to consult a dermatologist or a registered cosmetician before using any of these products;
- to buy the cosmetics only from a reputed retail store where sales transfer is high;
- long shelf life of cosmetics can cause increased carcinogenic reactions; so strictly use the products before the stipulated time;
- to check whether the personal care products confirm the FDA or European Union standards;
- to perform a skin patch test for allergies before applying the product;
- to reduce the usage of synthetic products and treat the skin with natural derivatives;
- to wash their faces from the makeup applications thoroughly with water, to keep the skin pores open before sleep;
- to scrub the skin often to get rid of dead cells and to look rejuvenated;
- to subscribe to health magazines and to be aware of the effects and defects of beauty products.

With all of the chemicals and preservatives that are in today's cosmetics, more people are turning to the benefits of the natural products that don't contain these harmful ingredients. There are now more organic and natural products available on the market. These have moved many consumers away from the chemical compounds traditionally used in beauty products, which many argue can be bad for our health and damaging to the environment, if not used in the correct manner. These natural cosmetics are a cut above the rest of the products on the market, containing no ingredients that can damage delicate skin. And most of them are not tested on animals.

As with the aloe vera phenomenon in the late 1970s and early 1980s, there are hundred of marketers espousing the Green message in cosmetics. Ingredients cover a wide range: macademia nut oil, jojoba oil, almond, babassu oil, olive oil, shea

butter, vanilla, mandarin oil, corn flower, tangerine, cyprus, herbal extracts, eucalyptus, menthol, kiwi, grape seed and hazel nut oils, chamomile, aloe vera, cucumber, rosemary, caffeine, camphor and so on.

For example, a natural substitute for the petroleum products is a combination of olive, wheat germ, peanut and coconut oils, without adverse effects.

We have to take a look below at just a few of the many reasons why we should consider switching to a natural cosmetic line.

1. *Less breakouts*: One of the biggest benefits of switching to natural products is the fact that the skin will experience fewer breakouts. Many of the popular commercial cosmetic lines use oils as the base for their products. In all the natural cosmetics, the base is typically water-based and many are „mixed at home”.
2. *No animal testing*: Throughout the last fifty years, cosmetics companies around the world have been boycotted by animal rights activists. Many of these types of companies test their products on lab animals, in order to make certain that their cosmetics do not cause harm to the human consumers.

The Green companies use to claim that their ingredients are 100% free of toxins, pesticides, allergenic substances, radiation and other pollutants, that they are biologically degradable. At the same time, the use of recycled paper packaging and of biodegradable plastic contributes to the Green image of the firm, being attributes used in conserving natural resources or avoiding waste by not adding to the ecological problem the waste disposal (*Davis, 1995*).

As we know, ads can be misleading and as an educated consumer we can easily make the right choice. There are five easy ways to find out if a cosmetic may receive the name „Green beauty”.

1. A very important measure of going green is to make sure that all the cosmetics or beauty products are not tested on animals;
2. The use of natural and/or organic materials to make cosmetics is essential. Most truly green products are certified natural, organic and/or vegetarian by the world's most reliable independent third party organizations;
3. Green product companies gave back to „Mother Earth” the natural gifts received, by planting trees, investing in green research or donating to green causes. This can be easily researched on the internet;
4. You need to understand the meaning of organic and natural when looking for green beauty products. Organic means that the ingredients are grown without toxins, chemical pesticides or herbicides, using sustainable farming practices. Natural basically means the ingredient is just that: „Natural”.
5. Green packaging is also important when you purchase beauty products. The use of recycled paper, boxes, etc. tells you the company you are dealing with is actually making an effort to save our planet.

If companies aren't green, they aren't going to take the time to send the information listed here.

Natural cosmetic sales in Europe are increasing at a fast rate with revenues doubling every five years. Most demand for natural cosmetics was initially from

consumers who suffered from ailments like skin irritation; however the consumer base has expanded in recent years. Natural cosmetics are gaining favour as they contain low levels of possibly harmful substances like Parabens. Other consumers are turning to natural and organic cosmetics because of the functionality of natural ingredients and /or traceability of organic ingredients.

Retailers are responding to greater consumer interest by introducing natural cosmetics, some under their private labels. Drugstores, supermarkets and even discount stores are introducing private label products. Organic food retailers and herbalist shops are expanding shelf-space for natural and organic cosmetics.

The German and French markets are the fastest growing in Europe. French sales have boomed since 2005 when media reports highlighted the possible dangers of synthetic substances in cosmetics and toiletries. Natural cosmetics are the most widely available and most competitively priced in Germany. High growth in the German market is being driven by increasing distribution in mainstream retailers.

Although the natural cosmetics market is reporting high growth, the share of total cosmetic sales remains low. The market share is highest in countries like Germany and Austria where natural cosmetics comprise about 5% of total cosmetic sales. Although the U.K. market has been showing high growth rates, the market share of total cosmetic sales remains below 3%. However, the market share is about 2% in most other European countries. Natural skin care products have the highest market share of all product categories, whilst colour cosmetics and deodorants have the lowest share.

The absence of industry regulations and lack of harmonisation of private standards are factors that are preventing higher market growth rates. Unlike organic foods, there are no national and EU regulations for natural and organic cosmetics. Legitimate products are therefore competing against conventional cosmetics that are labelled as „natural” because they contain some natural ingredients.

This first-ever report on the European natural cosmetics market gives recommendations to new entrants and existing suppliers. Producers and retailers are advised to undertake marketing campaigns to educate consumers on the differences between natural and conventional cosmetics. Manufacturers are advised to adopt strategies based on product differentiation and positioning to succeed in this emerging market.

New research by Organic Monitor demonstrates that the mainstreaming of the European natural cosmetics market is leading to increased market segmentation; new entrants and existing suppliers are developing products for specific consumer segments and sales channels.

Most developments are in the U.K. market, with many new product launches targeted at distinct consumer segments. In the last 18 months, new products have been introduced -especially for babies and children, teenagers and male grooming.

The trend of increased segmentation is also manifesting itself in retailer private label products. The U.K. and German markets have witnessed the largest number of natural cosmetic product launches under private labels. Natural and organic products have been launched under own brands of supermarkets, drugstores, organic food retailers and even discounters. Private labels are the most successful in the German market, where they comprise more than 10% of total natural cosmetic sales.

Customers in Germany spent about EUR 672 million on natural cosmetics in 2008, a significant increase of 9.7% compared to the previous year (2007). The organic and „near-natural“ segments already represent around 10% of the German market. The rising environmental consciousness and health awareness among consumers, as well as the desire for sustainability are fuelling the growth. That means, these market isn't saturated, yet.

At least but not at last, the mission of sustainable cosmetics is to provide the consumers with natural and organic products that will not only enhance their beauty, but are a „greener alternative“ that helps the environment.

## **RESULTS AND DISCUSSION**

Everyday, massive amounts of shampoos, toothpastes, hair gels, deodorants, facial wipes are being used and then put into our waste systems and environments. Natural and sustainable alternatives are available and will allow our environment and waste systems to break them down more easily. Many consumers are always demanding better, more sustainable alternatives.

With so many naturally sourced or mineral based beauty products available, consumers can use more sustainable products.

When you are buying beauty care products, you should consider all the environmental aspects even whether the product packaging can be recycled. You should look at the information on the label to see whether the product is:

### *Eco-friendly*

You can look to see whether the product contains only natural and/or organic components. There are many organizations that promote the use of organic or natural ingredients. They offer information and symbols on the packaging that help to guarantee the validity of claims.

### *Using non-harmful ingredients*

There are a number of products available that are allergy tested to reduce the irritation and health risks for eyes and skin, for example. You should check to see whether the product is dermatologically tested, particularly if you have sensitive skin. You may also need to check for any potential allergens in the product, before you use them.

### *Tested on animals or uses animal products*

You should look for the rabbit symbol on products, as this will help you to ensure that the items you are purchasing are not tested on animals.

### *Using environment-friendly packaging*

Many products now have packaging that has been reduced, is reusable or is recyclable. There are a number of recycling symbols that have now become familiar to consumers (Csorba, 2010).

- The alum symbol is used on aluminums products such as deodorant bottles;

- The eco-label is used to show that the product keeps environmental impact to a minimum;
- The recycle symbol is often printed in black or green and indicates that product has been made from reusable sources or that it can be recycled.

Sometimes consumers may prefer to buy and use cosmetics at home because they are cheaper and may be more comfortable. Before using beauty products at home, consumers should consider how they are going dispose the waste created.

Consumers are able to recycle many boxes and plastic bottles, but certain items can have chemical residues that need to be disposed of carefully. Some products may also stain your bathroom or furniture so it is essential that you follow any guidelines on the packaging of the item. You should also pay particular attention to any allergen information and use any safety products that are provided. If consumers are using any of these products at home, it is essential to follow the guidelines given with the product. Cosmetic manufacturers are required to list all of the ingredients in each product with the highest quantity listed first and then others in descending order as well as any allergen information.

On cosmetic or toiletry labeling, there may be words that are not familiar for the consumers, taking time to discover what these mean before the use of the product. For example, a particularity is if you have skin sensitivity issues or allergies.

A number of chemicals used in beauty products have been banned as there was evidence that they were very harmful to the environment. The most familiar example is the banning of CFCs in 1987 by the Montreal Protocol. CFC's were found in many cosmetic products such as deodorants and hairsprays but they had a hugely detrimental impact on the environment.

As consumer, you should also consider the environmental impact that flushing and showering chemicals into the water system can have. Concerns for aquatic life and other environmental issues are growing as increased levels of cosmetic and synthetic ingredients found in products like shower gels and soaps are working their way into ecological environments.

## **CONCLUSIONS**

Not all the companies have nowadays the power to embrace Green as the wave of the future. Many appear to have reservations about preservative efficacy, about consistency, about what ingredients they are included. It is probably significant that so much of the market activity is being generated among small to mid-sized companies. But, lots of name brand cosmetic giants have Green or „natural” ingredients in their formulations. Even companies that didn't start out Green have evolved over time in that direction.

Which will be the future of the Green marketed cosmetics? Speakers at the Natural Cosmetics Conference 2009 in Nuremberg (Germany) have debated the future of organic and natural cosmetics in Europe and the USA. They consider that the segment still has a high potential for growth but need more consistency at all the levels: from standards to retail concepts. Since years, natural cosmetics represent a growth segment and without doubt this trend continues and will exert influence on the whole cosmetics

market. Considered worldwide, sales are growing by US\$ 1 billion per annum and are currently estimated at around US\$ 7 billion in total. As in the case of organic food, the great demand for natural cosmetics is concentrated on Europe and North America.

Indeed, the natural cosmetics business is one of the few economic sectors that show favorable development rates. Increased media presence and the rising number of distribution channels are also important factors of growth. The segment is currently evolving from a demand-driven to a supply market, which means new challenges for everyone involved.

As more consumers demand safety in their beauty products, the natural cosmetics industry has responded with increasing quality and diversity. But as with all cosmetics, there is no regulation of ingredients or legal standards for terms such as „natural” or „pure.” Organic can be especially misleading - products may use oils from organically grown fruits and still be loaded with chemicals.

Because of that, it depends on the consumers if they want to pay more for „natural” and/or ecologically helpful products and if they continue to become more confident about using them. But it remains important for all the cosmetics companies to concerns about acid rain, warming of the earth's atmosphere, holes in the ozone layer, pollution of water and soil, closing of landfills and alternative garbage disposal and to produce biodegradable packages and natural produces, which are not able to harm neither the environment, nor the consumer's health.

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## ECONOMIC-MATHEMATICAL MODEL FOR THE EXAMINATION OF CLUSTERS' SUSTAINABILITY

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### **ABSTRACT**

*Economic, political, and social tendencies have brought new actors into the picture. Alliances, business networks, and a special type of cooperation called "cluster" now play a more and more important role in the development of countries' economies and in the enhancement of regions' and local companies' competitiveness. The most efficient of these are clusters, which consist of profit oriented, competitive companies, academic institutions, and civil establishments trying to collaborate with each other toward a common goal and taking advantages of geographical proximity and the coordination of capacities. The most essential condition for establishment of a cluster is that a certain number of enterprises take part in the collaboration. This number can be defined as "critical mass," because it generates processes that attract other institutions to the region to utilize the possibilities of spatial concentration and to take advantage of positive local conditions. The specific quantity of institutions in "critical mass" is related to the financial requirements of the given cluster. Reciprocal access to the organizations' incomes is necessary to long-term operation, and this can be difficult without the right number and combination of members. I created an economic-mathematical model suitable for examination of networks' sustainability, considering financial circumstances and shareholder base.*

Keywords: cluster, model, sustainability, financial structure, shareholder base

### **INTRODUCTION**

My paper is about a mathematical-economic model I have created for the examination of the sustainability of business networks as clusters.

Today's economic map of the world is characterized by what Porter calls clusters: critical masses in one place made of linked industries and institutions ranging from suppliers through universities to government agencies that enjoy unusual competitive success in a particular field (Porter, 1998).

Clusters have been explored by several authors dating back to Weber (1929) and Marshall (1920, 1923). More recent reviews include those of Lloyd and Dicken (1977), Krugman (1991) and Enright (1998) but the most quoted explanation was identified by Porter (1998).

According to Porter's theory clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or region. Clusters affect competition in three broad ways: first, by increasing the productivity of companies



based in the area; second, by setting the direction and pace of innovation; and third, by stimulating the formation of new businesses within the cluster. Geographic, cultural, and institutional proximity provides companies with special access, closer relationships, better information, powerful incentives, and other advantages that are difficult to tap from a distance (*Porter, 1998*).

The maintenance of these initiations is a popular topic of discussions among the specialists and the policy makers everywhere in the world and that was the reason why I have dealt with the modelling of this problem.

If we examine the countries where cluster policies have been determined and applied we can experience that there is no generally accepted practice which can be used successfully everywhere and could be adopted without difficulties by other countries. This is due to the divided opinions on the maintenance, membership and financing of clusters depending on the national capabilities, special circumstances and economic backgrounds. The participants of collaboration require external support either from the government or the EU especially in the first phase of the cooperation. The network needs a significant amount of investment in order to create a favourable business environment and overcome problems related to the difficulties of communication and the lack of trust. In addition the invested capital does not generate profit and quick return automatically. However policy makers emphasize the importance of clusters' self-sustaining capacity which is essential to the long-term sustainability of networks. This capacity can only be realized in the end of the second or at the beginning of the third phase of the life-cycle. Summarizing the requirements joint funding seems to be the best solution. Experiences highlight the fact that exclusive state aids result in the formation of clusters where no real cooperation exists but which were established only for the acquisition of EU sources. The financial question is strongly associated with the membership composition of these organizations. The number of contributors operating in the same industrial branch, such as enterprises, support and background institutions, has to reach a minimum. This so-called 'critical mass' is necessary to realize the self-financing of clusters and generate positive processes attracting other institutions to take advantage of local externalities and geographical proximity thus enhancing the area's competitiveness.

## **MATERIALS AND METHODS**

More experts have examined the dynamics and the "critical mass" of clusters with mathematical tools who had a very great impact on me and on my research activity. I emphasize among them *Brenner (2004)* and his book titled „Local Industrial Clusters, Existence, Emergence and Evolution” and the book „Clusters, Networks and Innovation” which was edited by *Breschi and Malerba (2006)*. In addition to these the basic idea of my mathematical-economic model was inspired by a biological model examining the sustainability of a community consisting of two homogeneous groups with different functions, tasks and responsibilities. This article was written by three American researchers called *Haque, Egerstedt and Martin (2010)*. The lion model they created dealt with African Lions, *Panthera leo* that live in well-defined

social structures known as prides. Typically, these prides consist of 1-3 adult males and 2-9 adult females along with their dependent cubs. Females are usually in charge of hunting for food, while males are responsible for territorial defense. The American research team determined whether the group is sustainable with a given number of males and females. By sustainable, they meant that the females can hunt sufficient prey to feed the entire pride and at the same time, there is an adequate number of males to patrol the territory.

I applied the same method because I divided the cluster initiation into two homogenous groups consisting of productive and unproductive members where both of these teams had their own tasks. I tried to transpose the criteria of the lion model into mine making some adjustments on the way.

## **CLUSTER-MODEL**

### **Meanings of the abbreviations and notations**

The abbreviation  $C$  arises from the English expression „cluster” which is a special type of business network. I divided the cluster’s membership into two groups. These consist of  $J$  productive and unproductive members.

It is self-evident that the members count for different advantages and benefits from the co-operation, that is the reason why they choose to collaborate against the intense competition. I assumed that all of these gains can be realized in money.  $M$  is the cluster’s resource demand,  $m_j$  stands for the aim for money of productive members,  $m_i$  means the expectation for sources of unproductive members which are determined for one year.

The measure of annual membership fee which has to be paid into the cluster’s budget by the members is  $t$ , where the subscripts refer to the groups which they belong to. Accordingly  $t_j$  marks the annual membership fee of productive members while  $t_i$  shows the annual membership fee of unproductive members.

A special part of incomes within the cluster arises from external services which are provided for outsiders by productive members therefore I marked it with  $s_j$ .

$Pr$  is the abbreviation of a bivariate function which describes the probability of applications’ chances of winning. These applications were submitted by groups formed ad hoc within the cluster to apply for money from the European Union and from the Hungarian government.

The parameter  $g$  illustrates the number of project teams created within the cluster to submit applications and raise fund. Let me assume that all of them include  $j_g$  productive and  $i_g$  unproductive cluster members.

I would like to emphasize that the same (optimal) productive-unproductive proportion can be experienced in all groups of a cluster which have been formed to submit applications and it is valid in the whole network too. I marked this rate with  $k$ .

## **THE CLUSTER MODEL’S ASSUMPTIONS**

The membership of the cluster consists of two groups. One of them involves productive members like enterprises, suppliers and service providers while the

other involves unproductive members such as universities, research institutes, consulting companies and other non-profit organizations. This condition can be described with the following equation:

$$C=I+J. \tag{1}$$

The long-term operation and the sustainability of the cluster require a minimum level of annual sources necessary to finance the operating expenses and to facilitate the provision of services for the cluster's members (for example to maintain the common webpage, organize different trainings, professional tours and factory visits, edit and send out the annual newsletter and a lot of advertisements, represent the cluster's members at conferences, workshops and exhibitions, obtain money for the maintenance of the cluster's management organization etc.). Members' aim for money can be evaluated with the following formula:

$$M \min(I, J) = m_I \cdot I + m_J \cdot J. \tag{2}$$

The money flowing into the cluster within a year is utilized jointly by the partaking members of the co-operation to realize their common goals. Therefore when I simulated the model I assumed that the share from the network's money is the same for the productive and for the unproductive members. That was the reason why I substituted the same amount into. This amount can be defined as one member's need who decided to participate in the collaboration to complete its missing capacities. This money should be realized from the annual sources by each organization regardless of its being productive or unproductive. Concerning the amount we can differentiate it between the two groups. If the contribution of the productive members to the cluster's maintenance is more important than that of the unproductive one, we can allocate a bigger amount for the unproductive members which means that  $m_J > m_I$ .

1. The annual revenue of the cluster can derive from membership fees, from external services and from winning projects which can be realized in one year as the following equation shows:

$$M(I, J) = t_I \cdot I + t_J \cdot J + s_J \cdot J + g \cdot \bar{M} \cdot \Pr(j_g, i_g), \tag{3}$$

where  $\bar{M}$  signs the amount of the average annual money acquired by the applying groups formed ad hoc while  $\Pr(j_g, i_g)$  shows the probability which describes applications' chance of winning.

2.  $\Pr(j_g, i_g) \in [0, 1]$  gives a probability whose value can move between 0 and 1 and it is described by a bivariate quadratic performance curve. One of the possible functions can be written down by the following equation:

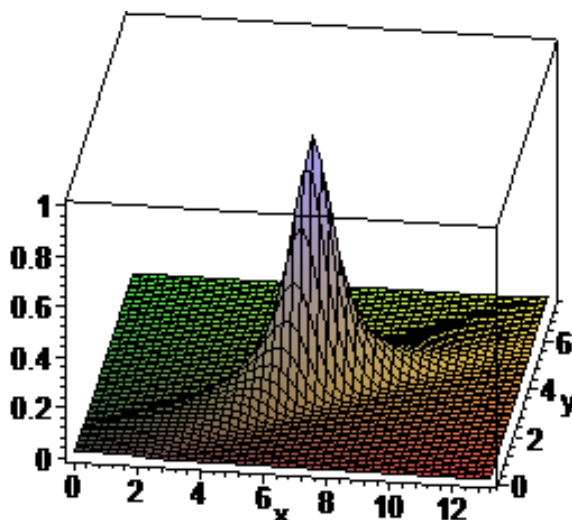
$$\Pr(x, y) = \frac{1}{(x - ky_0)^2 + k^2 \cdot (y - y_0)^2 + e^{(x-ky)^2}}, \tag{4}$$

and another condition is valid at the same time:  $x_0 = ky_0$ . This curve reflects the 5<sup>th</sup> hypothesis very well. The applications' chances of winning are higher if the groups formed to write proposals consist of more productive and unproductive members till they reach the upper limit of the membership. After that the coordination and

the harmonization of the members' interests become more difficult and the efficiency decreases. The highest chance of winning can be experienced in the environment of the  $x=ky$  line, and  $\mathbf{Pr}(x, y)$  function's absolute maximum is in the  $(x_0, y_0)$  point. The figure of the curve can be followed up at the first illustration (Figure 1).

Figure 1

The probability distribution function



3. Each group within the cluster formed to apply for governmental support has to include productive and unproductive members. Let me repeat the former remark that the same (optimal) productive-unproductive proportion can be experienced in all groups and is valid in the whole network too. This rate was marked with  $k$ .

I assume that every member of the cluster is allowed to take part in a maximum of one application (and since participation in projects is not obligatory there can be passive members in the cluster). This assumption can be described with the following formulas:

$$g \cdot j_g \leq J, \tag{5}$$

$$g \cdot i_g \leq I, \tag{6}$$

$$k = \frac{J}{I} = \frac{j_g}{i_g}. \tag{7}$$

4. According to my notion of sustainability, a cluster can be maintained in the long term if it's financially feasible without any problems which means that the following condition prevails:

$$J \cdot (m_j - t_j - s_j) + I \cdot (m_i - t_i) \leq g \cdot \bar{M} \cdot \Pr(j_g, i_g). \tag{8}$$

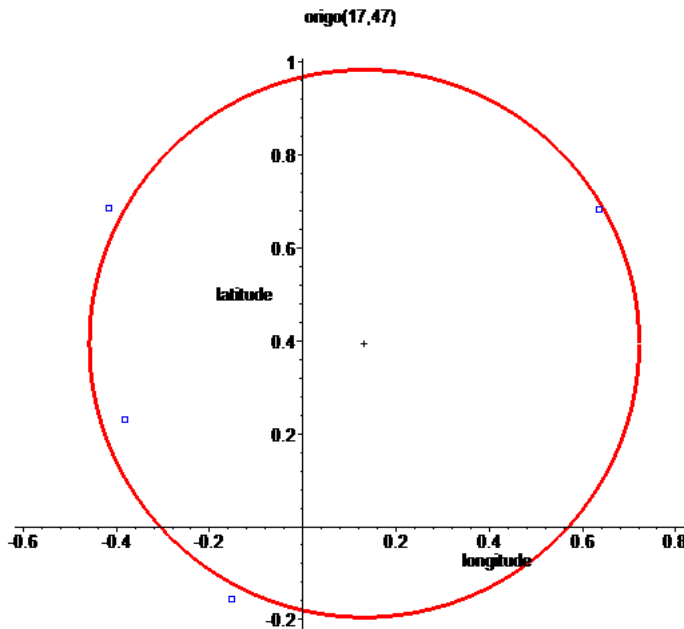
5. My model has an additional component because it is based on the West-Transdanubian Region and I assumed that the membership of the cluster does not cross the imaginary borders. Seven statistical regions were adopted in Hungary by the decision of the Parliament in 1998. The Region of West-Pannonia includes three counties: Győr-Moson-Sopron, Vas and Zala counties. The region borders four countries: Austria in the West, Slovenia and Croatia in the Southwest and Slovakia in the North. I utilized the information about the Region's area because its extension is 11 209km<sup>2</sup>. I experienced that the unproductive members of the clusters such as universities, research institutes, the Regional Development Agency's offices and the largest consulting and tender writer companies concentrate in the 3 counties' centres: Győr, Szombathely and Zalaegerszeg and in a big town called Sopron. I considered 4 cities as unproductive centres where unknown numbers of unproductive organizations can be found facilitating the productive members' more effective operations.

I illustrated the four towns with their geographic coordinates and I fitted a circle around them with the Ordinary Least Squares as you can see in the *Figure 2*. After that the circle which I got was increased to the size of the region's extension, to 11 209km<sup>2</sup>.

The circle which I fitted around the region's 4 big towns (unproductive centres), Sopron, Győr, Szombathely and Zalaegerszeg can be seen in the *Figure 2*.

**Figure 2**

**The circle fitted around Győr, Sopron, Szombathely and Zalaegerszeg (unproductive centres)**



## SIMULATION AND RESULTS

I tried to provide the computerized testing of the model with actual data from the real economic environment. In this intention I could count on managers directing the clusters' operation in the West-Pannon Region. A chosen cluster supplied the information used in the model to simulate its function.

In the first case I tested the members of the chosen cluster pay an annual fee to facilitate long term operation and financial security. The amount of this fee is  $t_j = 100$  for the productive members and  $t_i = 50$  for the unproductive ones. (The amounts are given in thousand forints abbreviated HUF.)

The optimal productive-unproductive proportion in the cluster and in all of the groups formed within the cluster was assumed as 2 which means that  $k=2$ .

The cluster has other incomes too which arise from external services. These are provided for outsiders by productive members. I evaluated the amount of the annual service charge and determined its measure in  $s_j = 67$  (thousand HUF).

I assumed that 3 groups formed within the cluster to write applications and to try to get money for the co-operation in the framework of the cluster. It means that  $g=3$ . I had another assumption for the composition of proposal writer groups too because I assumed that all groups consist of 5 productive and 2 unproductive members:  $j_g=5$  és  $i_g=2$ .

The members share the sources realized in one year equally because they utilize the money jointly. I assumed that the average annual resource demand of unproductive and productive members is the same. This amount is  $m_j = m_i = 500$  (thousand HUF).

The question is given: Which clusters are sustainable in long term under these conditions if the network's composition and membership is taken into account?

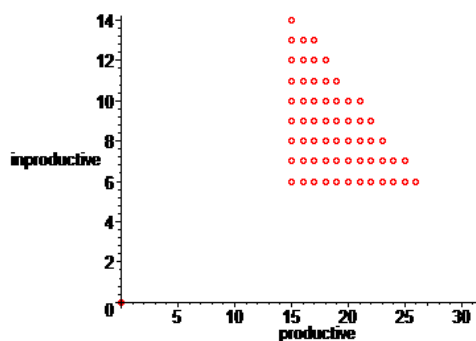
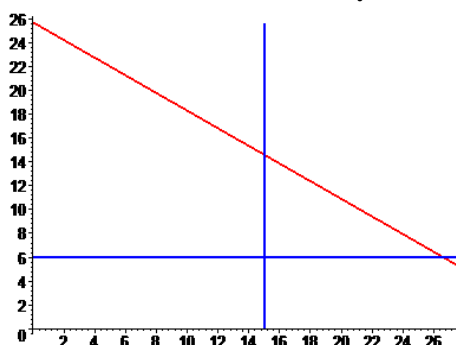
The answer which I got from the simulation is illustrated in the *Figure 3*.

The three cases differ from each other only in one condition, every other parameter is the same. The amount of money acquired by winning tenders is decreased gradually. The result can be followed up in the *Figure 3*.

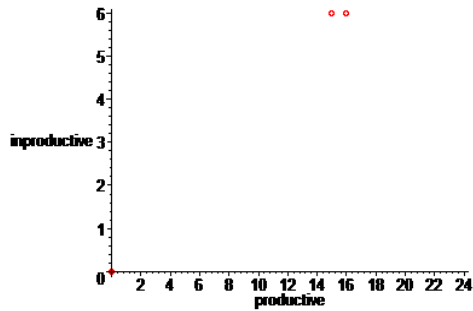
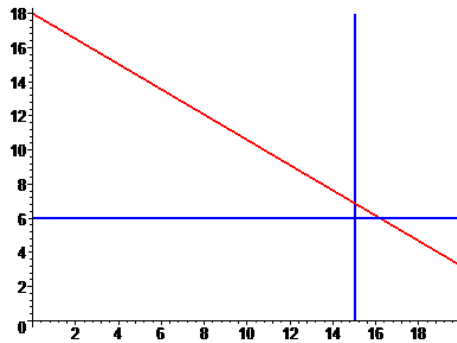
Figure 3

### The result of the model's first simulation

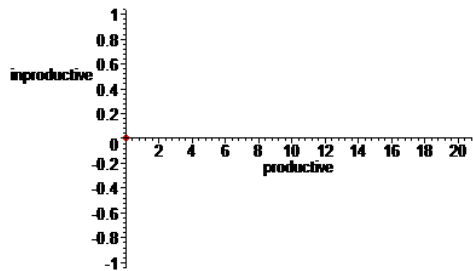
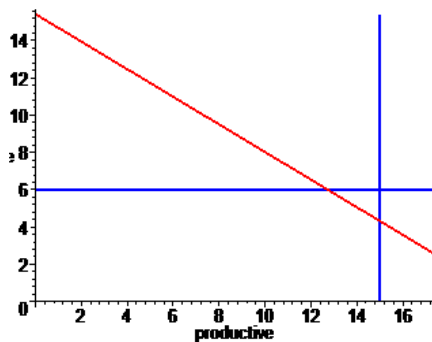
1. case  $\bar{M} = 50\,000\,000$  HUF/year



2. case  $\bar{M} = 35\,000\,000$  HUF/year



case  $\bar{M} = 30\,000\,000$  HUF/year



In the first case I assumed that the groups writing proposals could acquire 50 million HUF as support from the Hungarian government and from the European Union. I examined the conditions which influence the cluster's sustainability and I determined that under the given circumstances 60 different networks of different sizes and shareholder basis are viable. The solution can be represented by a triangle bounded by 3 lines arising from the equations in the 5th and 6th points. When I reduced the external sources I experienced the decrease of the number of sustainable clusters. When the amount of support was 35 million HUF, the line representing the financial criteria changed and therefore the area of the triangle (solution of the mathematical exercise) became smaller and it resulted less clusters that can be maintained in long term. Only 2 clusters can operate under these circumstances. In the third case the assumed external contribution to the cluster's budget was 30 million HUF. When I left all the other conditions unchanged I experienced that there was no co-operation in the framework of clusters that could be maintained in long term.

During the first simulation I became curious wheatear the number of the sustainable cluster initiations will change and the chance of survival will be higher or not if I increase both the amounts of annual fees for the productive and inproductive members too at the same time when the external sources are reduced. This situation means that the contribution of the collaboration's members lifts while the proportion of the supports which clusters get by applications from the

government decreases within the financial structure of the cluster. I simulated this case and I represented the result on the *Figure 4*.

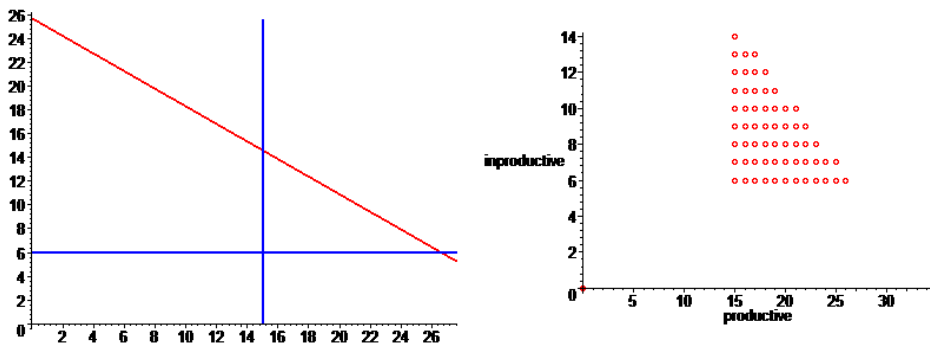
I substituted the same data I had used in the first simulation before I started to decrease the external sources of the cluster but in the second testing I reduced the governmental support and increased the annual fees of productive and improductive members parallel. This solution is promoted by most of the experts dealing with the financial maintenance of clusters because they emphasize the importance of the organizations' self-preservation which is essential to the long-term operation. I assumed the same measurement (20 percent) in the reduction of the governmental support and in the increase which happened in the amounts of the annual fees. It means that 3 parameters changed parallel in the model:  $\bar{M}$  which signes the amount of the average annual money acquired by the winning applications decreases by 20 percent year by year while  $t_j$  and  $t_i$  (the annual membership fees of the productive and improductive members) increase by 20 percent every year. Every other data is unchanged compared to the initial state.

The result of the simulation can be studied in the *Figure 4*.

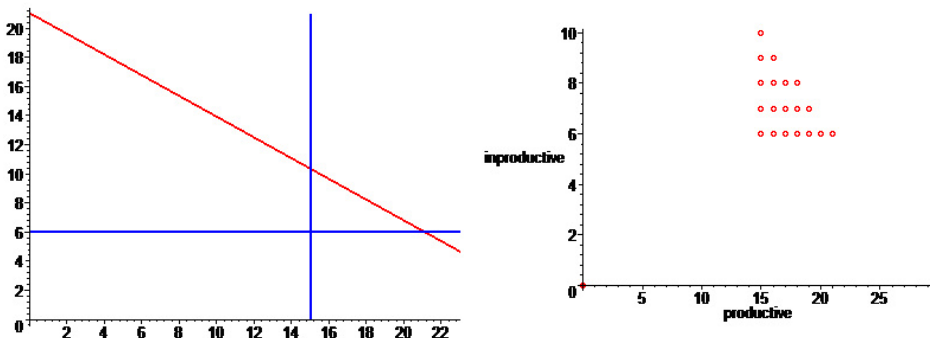
Figure 4

The result of the model's second simulation

1. case  $\bar{M} = 50\,000\,000$  HUF/year,  $t_j = 100\,000$  and  $t_i = 50\,000$  HUF/year

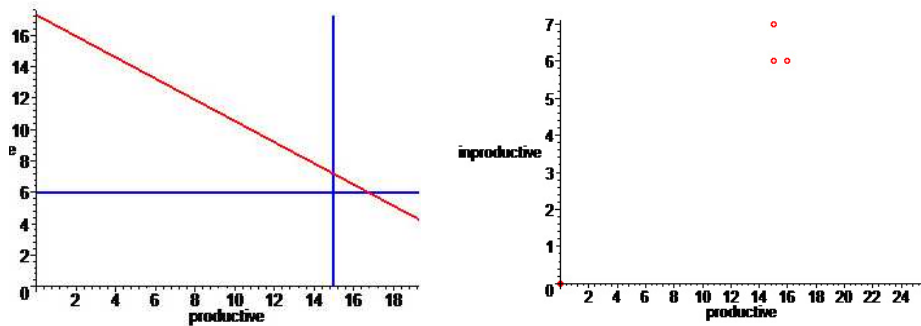


2. case  $\bar{M} = 40\,000\,000$  HUF/year (-20 percent),  $t_j = 120\,000$  and  $t_i = 60\,000$  HUF/year (+20 percent)

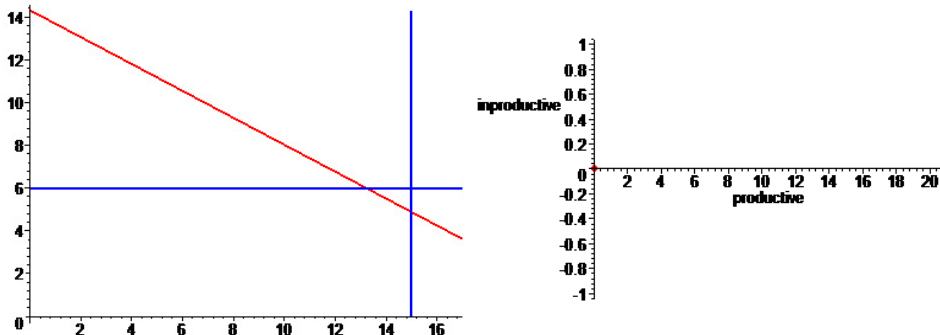




3. case  $\bar{M} = 32\,000\,000$  HUF/year (-20 percent),  $t_j = 144\,000$  and  $t_i = 72\,000$  HUF/year (+20 percent)



4. case  $\bar{M} = 25\,600\,000$  HUF/year (-20 percent),  $t_j = 172\,800$  and  $t_i = 86\,400$  HUF/year (+20 percent)



In the first case when the data were the same as in the initial state of the first simulation the result was the same because 60 different networks with different sizes and shareholder basis were viable. One year later the governmental support decreased by 20 percent and the external sources represented such a big proportion in the financial structure of the cluster that the reduction of them could not be compensated by the increase of the annual membership fees (which is a typical characteristic of the Hungarian cluster initiations) the number of the sustainable clusters fell down and only 19 clusters stayed in the examination which have a good chance to the long-term operation among the given circumstances. I repeated the same changes in the following two years too but the number of the sustainable clusters decreased year by year. The conclusion of the second simulation is that without a balanced financial structure - where the external sources do not represent an extremely big proportion in the financial structure like in Hungary - it can not be realized that the decreasing governmental sources can be substituted by the increase of the participants' contribution and by the growing membership fees. Cluster initiations in Hungary depend on external sources too much therefore they need to be promoted by the government especially in the first some years of their operation.

## CONCLUSIONS

My goal was to create a simple mathematical-economic model which is suitable to examine clusters' and other business networks' chance of survival under different circumstances. I wanted to take the financial conditions into account just as much as the shareholder base. I am aware of the fact that my model has a lot of deficiencies because of the simplifications and it needs to be improved, and I am planning to develop it in the future.

However it can be determined from this model that clusters need to collect membership fees in addition to gathering external sources and support from the government. The consequence that the size of networks cannot be increased flippantly can also be instructive. If the sources acquired from applications decrease they can be substituted with the increase of membership fees and service charges which can jeopardize the co-operation and the survival of the cluster should its members refuse payment.

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## THE ROLE OF ADAPTATION TO CLIMATE CHANGE IN RURAL DEVELOPMENT

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### ABSTRACT

*One of the most important consequences of global climate change is expected to be the joint appearance of extreme weather phenomena such as flood, inland inundation, and drought. Human populations living along rivers are most seriously affected by those phenomena. In the frame of the WateRisk-project (financed by the National Research and Technology Office of Hungary), we focused on the small communities living along the river Tisza, exploring the citizens' opinions regarding the most acceptable possible solutions to water-related problems. Their conformity – also called willingness of adaptation – has been analyzed by two survey methods. Our questionnaire contained several questions on water-related issues, including the willingness of respondents to pay for increasing the proportion of natural and nature-close areas. It also examined the value system and priority setting of inhabitants towards water-related problems, local patriotism, community relationships, economic opportunities, and the natural environment, which opinions have been assessed via Q-methodology (Brown, 1996; Schmolck, 2002). With the help of Q-methodology, a value- and attitude-based behavioral profile of inhabitant groups will be shaped and their willingness and capability of adaptation will be evaluated.*

Keywords: climate change, rural development, willingness to pay (WTP), Q-methodology

### INTRODUCTION

A lot of consequences of global climate change affect people's everyday life, the prosperity of individuals. As a result, the emerging extreme weather phenomena (flood, inland inundation, drought) can cause serious damages in the area of agriculture or tourism etc. One of the aims of rural development is to maintain local communities, to ensure their local prosperity, to which is essential to eliminate or mitigate the harmful consequences.

The „Extreme-risk area of water resources for effective, sustainable alternatives to the medium and long-term treatment” project, also called WateRisk-project (financed by NKTH, TECH-08-A4/2-2008-0169) started in 2006. In the project we focused on local communities, what preferences they have to maintain and develop their local residence and to eliminate or reduce the impacts of extreme weather phenomena. Two survey methods were performed, the results of which were used for the estimation of the future water use and an integrated cost-benefit analysis in

a later part of the project. The first test applied the so-called contingent valuation, which is a method based on direct questioning of people which can be used for evaluating non-market goods, namely through the willingness to pay. The other survey applied the Q-methodology in the framework of a focus group discussion by which the public attitudes to various issues can be figured out. The study presents the most important results of these two research parts.

## **MATERIALS AND METHODS**

In the course of our research two methods were applied to discover the preferences of people from three regions: a questionnaire survey with contingent valuation and a focus group discussion with Q-methodology. According to the environmental literature there is a lot of ways to assess the changes in ecosystem services. In the first group there are such procedures which identify benefits as development costs. These methods do not estimate the values on the basis of individual preferences so, economically they can not be considered theoretically well founded, but they provide good basic information for decision making.

The theoretically correct group of the methodologies is created from those which estimate a demand curve: these are the stated preference and revealed preference procedures. In practice, it means that we are looking for the people's willingness to pay<sup>1</sup> (WTP – willingness to pay) related to a certain change. The willingness to pay analysis can be done by the contingent valuation method.

The contingent valuation method (CVM – contingent valuation method) is the oldest (for a detailed description see *Mitchell and Carson*, 1989; *Marjainé Szerényi*, 2005), and thus, methodically the most advanced revealed preference procedure. It is a direct method meaning that people are asked directly about their willingness to pay, so it is always based on a questionnaire survey. Since this is best known method, its application is still the most widespread in research. The range of goods evaluated by the CVM is almost unlimited, because due to its hypothetical nature any changes can be written in the questionnaire, even those which have not yet happened. However, it is important that the analysed change should be credible as much as possible. With the contingent valuation method only the whole program can be evaluated, its individual components separately cannot.

Recently, we evaluated the population's preferences and willingness to pay in relation to the expansion of the proportion of the near-natural areas<sup>2</sup> with CVM. This can be one of the adaptation tools to damp and balance the extreme flow regime events along the river, because the on site and natural storage of water coming from the huge quantities of floods may reduce the periods of drought water shortage and the severity of adverse consequences. The questionnaire survey was carried out in three sub-regions, among inhabitants of Nagykörmű, Bereg and

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<sup>1</sup> Beyond people's willingness to pay, their willingness to accept (WTA) can also be examined, but this is irrelevant to our subject, so it can be neglected.

<sup>2</sup> The research project was conducted in the following framework: „Extreme-risk area of water resources for effective, sustainable alternatives to the medium and long-term treatment” (WateRisk), TECH\_08\_A4/2-2008-0169.

Homokhátság in May, 2010. In the aggregate, 325 people were sampled. The questionnaire consisted of three main parts. One part focused on the general attitude questions. Another one examined the willingness to pay and act related to the expansion of the proportion of near-natural areas. In the third main block the respondents could demonstrate their own social-economic-environmental attitudes partly in the present and also partly for the future. Evidently, the socio-economic characteristics were also inquired.

Q-methodology was developed by William Stephenson (see *Stephenson, 1953*), in order to systematically analyse human subjectivity. “The Q-methodology is listed among qualitative methods due to the emphasis on the subjective nature of attitudes and opinions” (*Hofmeister-Tóth, 2002, 2. p.*), and “is primarily used to explore opinions, attitudes/orientations and value systems” (op.cit. 3 p.). The methodology is predominantly used in Anglo-Saxon countries (see inter alia *Brown, 1996, Barry and Proops, 1999*). The International Society of Scientific Study of Subjectivity has been organising Q-conferences since 1985 on every year, which have proved to be outstandingly useful in discussing the application of the methodology and its further potentials. In Hungary the methodology is not well-known, although it has already been applied in a few cases, also in the field of environment protection (*Szabó, 2002, Nemcsicsné Zsóka, 2005*).

Based on *Hofmeister-Tóth (2002)* the most important areas of Q-methodology applications are as follows:

- political public opinion and attitude research,
- clinical psychology, pedagogy,
- research into marketing-, media-, and advertising,
- research into consumer behaviour,
- research into environmental awareness,
- research into gender specificities.

The main objective of the Q-methodology is to typify opinions related to a given issue by means of quantitative analytical techniques. In reality this is a “reverse” factor-analysis, which instead of creating latent variables from variables puts respondents into various factors – into so-called opinion-groups – based on the similarity or divergence of their opinions. The qualitative nature of the methodology is due to the fact that it requires neither a certain sample size as precondition for reliable quantitative analysis, nor representativeness. The methodology by generating typical opinions assists the researcher in shape recognition, but it is not suitable to generate representative types. The analysis generally involves 10-50 respondents, selected according to fixed criteria. Owing to its specific features, Q-methodology serves as bridge between qualitative and quantitative research methodologies, combining the advantages of both research traditions (*Brown, 1996, 561. p.*).

Q-methodology applies a special technique for data collection, called *Q-sort technique*. The essence of the technique is that the researcher provides the respondents with cards showing statements, words, possibly pictures. Respondents are supposed to rank the randomly numbered cards according to their preferences. They are assisted with an evaluative scale provided in advance. Respondents first

get acquainted with the topic and the content of the cards, then start sorting them. Usually, they first divide cards into three groups. One group is composed of cards containing statements which respondents agree with, the second group is made up of statements respondents do not agree with, and the third one contains statements which respondents have a neutral attitude to. Afterwards respondents continue sorting the statements according to the categories of the scale, comparing cards to one another and giving special consideration to each and every statement, in order to be able to rank them. The evaluative scale usually contains 7 (-3...+3), 9 (-4...+4), or 11 (-5...+5) categories, depending on the number of cards.

The sorting will result in the individual rank order of each respondent. These rankings are called *Q-sorts*. In the evaluation process the method compares preference orders in pairs (that is Q-sorts) and determines their correlations. The process results in an inter-correlation matrix, out of which *factors*, i.e. *typical Q-sorts* containing the “common denominator” of individual opinions, can be generated by means of principal component or centroid method.

In the next stage it is more suitable to transform factors into a simpler factor structure by means of VARIMAX or manual rotation, to make findings easier to interpret. It goes without saying that every preference ranking has to do with all factors, but individuals can very well be associated with one of the typical Q-sorts, based on their responses. This means that the method based on the otherwise latent divergences and similarities classifies respondents into the most homogeneous groups possible. Individual opinions thus will surface in a structured form, which is easy to interpret in statistical terms. The final outcomes, factors, contain respondents with very similar preferences and their rankings.

Q-methodology is “an innovative process in social sciences, which might supplement both quantitative and qualitative research” (*Brown*, 1993, cited by *Hofmeister-Tóth*, 2002, 12. p.). Supplementary, because it requires a small sample and does not demand representativeness, therefore it cannot substitute representative surveys. “The Q-methodology can especially be applied in cases where behaviour is difficult to communicate, or no conscious standard standpoints are disposable, as yet” (*Hofmeister-Tóth*, 2002, 12. p.). We are of the opinion that the integration of environment protection into corporate culture is by all means such a case therefore it is worthwhile to apply the method in order to test hypotheses.

## **RESULTS AND DISCUSSION**

The first step of the method is to create the hypothetical market. In this framework, the current characteristics of the assessed ecosystem service (good) is presented, then a program is also introduced what we would like to perform and for which we ask for the (hypothetical) contribution of locals. In the three sub-regions practically the same program was used. Some minimal differences in the program were caused by the need of adaptation to the specificities of the regions, in order that the program is more realistic and believable. The rate of the change was the same everywhere. In the questionnaire, a brief description of each of the three sub-regions was given first about the current land use situation. Then a program was

drafted. The essence of the program would be a change in the land use and it would be realized with the help of the so-called Tisza River Development Centre. The changes in the characteristics of the three regions were formulated as follows: a more mosaic landscape would grow up, there would be less drought, the frequency and severity of floods would decrease, and the proportion of near-natural areas would grow (from 10% to 30%). Respondents got the information that the program could be realised partly with the help of the state and partly with the contribution of local people.

The willingness to pay was inquired as follows:

„What would be the maximum amount which your household would be willing to pay per year for the ongoing 10 years in order that a balanced system of water management could be implemented by a land use change in Nagykörű/Homokhátság/Bereg region? Please note in your answer, that your income could be reserved to many other purposes as well!”

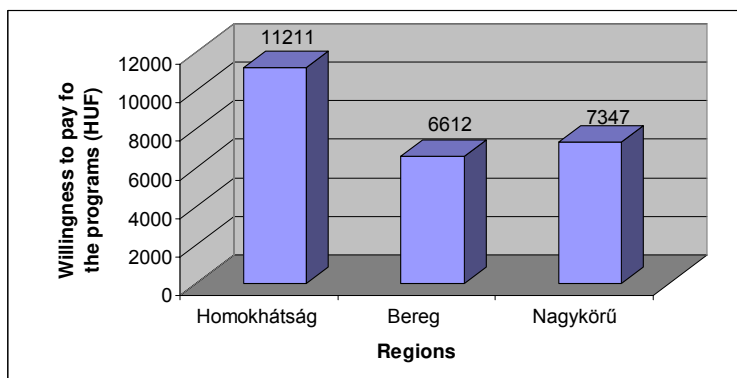
After methodological considerations defined by the literature (for example examining those who indicate zero WTP), the estimation of willingness to pay (WTP) is the main task. In our case, it was 8 738 HUF per year per household in the total sample, 0.547% of the average net income per year. Regarding the averages, there were differences between sub-regions: The inhabitants of the Homokhátság sub-region offered 11 211 HUF on an annual basis, which is significantly higher than the WTP of other two sub-regions. The inhabitants in Nagykörű would pay 7 347 HUF. The offers of the inhabitants in Bereg was the lowest, 6 612 HUF on average (the last two sums do not differ in statistical terms.) (Figure 1)

The significant difference disappears when we compare the offers relative to income (although the order will remain the original). In Homokhátság, the inhabitants would offer 0.62% of their income for the expansion of near-natural areas and for the program of changing the land use, in Nagykörű this proportion is 0.50%, while in Bereg 0.49%. Based on the results and taking into account the number of stakeholders it can be determined, what benefit the implementation of the program generally means for local inhabitants (aggregation).

The contingent valuation has many advantages in general and also in relation to the other procedures. One of the most important is that methodologically this procedure is the most widespread so we are aware of possible distortions and of techniques how to defend against them. This method is able to determine the total economic value – which is only true for the featured program –, and therefore it is suitable for measuring the value parts which are independent from use. It is important that any goods and any of their development alternatives can be evaluated with the help of the procedure, which comes from its hypothetical nature. Obviously, if the program is close to reality, people will be more confident toward the program. It is suitable for ex ante and ex post evaluation. Among its disadvantages it has to be mentioned, that not only the program is hypothetical, but also the payment of the offered money, which fact can distort the results upwards.

Figure 1

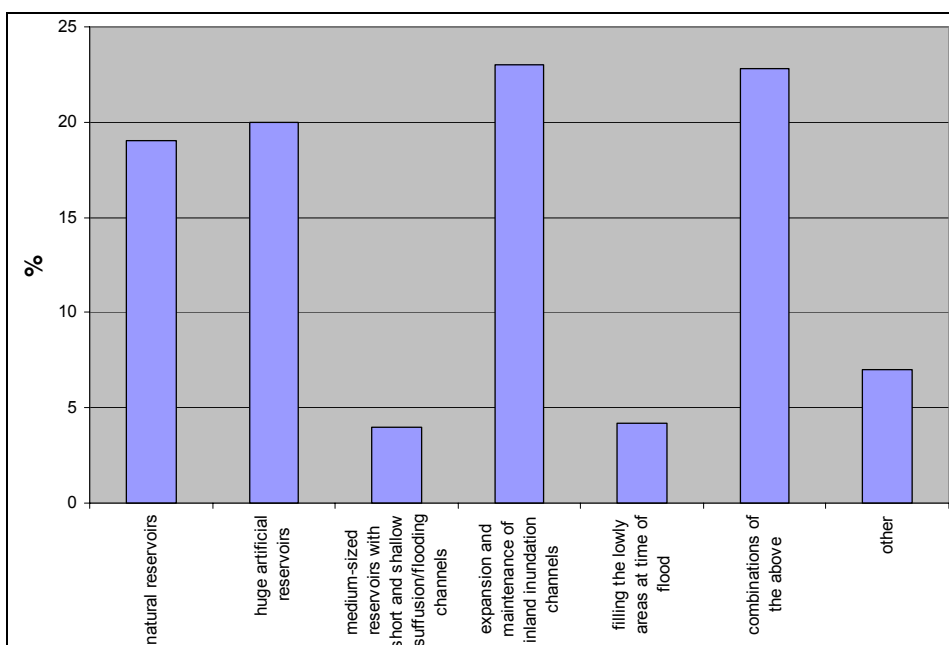
Willingness to pay of the inhabitants of some sub-regions  
(HUF/year/household)



The willingness to adopt was also investigated inquiring what type of water storage options are accepted by local inhabitants. Respondents could choose from seven different alternatives. *Figure 2* shows the results.

Figure 2

The acceptance of different ways of water among local inhabitants (%)



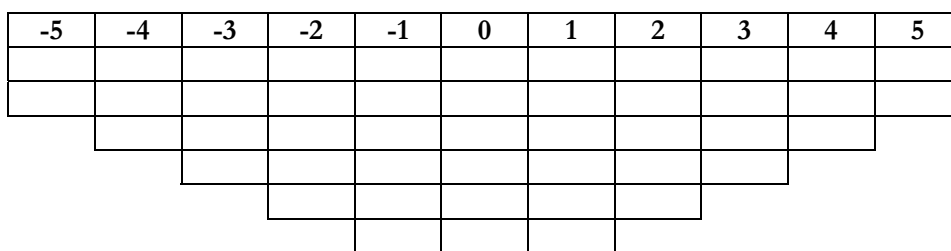


According to *Figure 2*, the most accepted solution would be the expansion and maintenance of inland inundation channels. Furthermore, the combination of the solutions is also supported by substantial proportions. In a slightly lower rate but many people accept the artificial reservoirs and also the natural reservoirs. The last one is definitely favourable and a promising result.

In the Q-methodology, 46 statements were formulated, which were characterized according to eight categories: (1) attachment of inhabitants to their *residence*, habitation, (2) attitudes of the respondents to local *cooperation, integration, property and living conditions*, (3) opinions regarding issues of *local agriculture*, (4) attitudes towards the *natural environment*, (5) *willingness to act and perceived responsibility* in order to achieve the water-related goals and preserve conditions of the area, (6) *perceived risks* and threats regarding future living and natural conditions, (7) *time horizon* of thinking, (8) *possible solutions* to water-related problems. The respondents placed the statements in the schema according to *Figure 3*. This means that those two out of the 46 ones had to be put into the column signed -5 which they disagreed with most and those two statements were placed into the column signed +5, which they preferred most. The sorting was based on a pairwise comparison of statements as described above.

**Figure 3**

**Sorting of statements based on forced distribution**



Number of statements to be sorted:

2      3      4      5      6      6      6      5      4      3      2

Source: *Brown, 1996*

The Q-method analysis was performed in all three sub-regions, but only the results of Bereg are presented here. In Bereg region Q-method was solved by eighteen people. Using factor analysis the individuals were classified into four factors, because the value of the variance reached the 60% of the expected value (65%) at this number of the factors. In all factors the distribution of individuals is appropriate, four or five people are in one factor. The first factor contributes to the explained variance with the greatest extent, with 21%.

In the following the certain factors are characterized on the basis of which statements were given high values and which of them low values by individuals. *Table 1* shows that how people living in Bereg region can be divided into groups based on factor analysis.

**Table 1**

**The groups of the people from Bereg region**

<b>The number of the factor</b>	<b>The name of the factor</b>
Factor 1	Positively thinking people
Factor 2	Pessimistic
Factor 3	Local patriots
Factor 4	Future-oriented people

Respondents in the *first factor* can be characterised by their *positive attitudes* towards the natural environment. They consider nature and nature preservation important and valuable although they like making use of opportunities given by nature (except the unrestricted use of the water of their own well which they reject). They live in local integrity, support cooperation among farmers and prefer buying local products. Primarily, they prefer shared responsibility; they take a position to act together in decision making. They have contradictory opinions in flood-related issues. They appear to lack information about the environmental impacts of applied water management techniques. They support insurance, but only the passive solution. They clearly see the dangers and they are optimistic, but in the case of flood problems basically they blame the responsibility both from themselves and the local community.

Compared to other factors, they have very different views in the following things: against the others they do not think that the chemical treatments are bad and also their negative perceptions related to the application of dams and emergency reservoirs really differ from the other factors.

Members of the *second factor* can be featured by their *pessimistic attitudes* towards their environment and future. They precisely perceive risks but they do not believe in that these problems can be solved in a cooperative way. Basically they prefer insurance, and they also agree with those statements what they can do on their own, but they are very negative in relation to people, they do not believe in common solutions. They are characterized by strong individual action. They have the highest willingness to individual sacrifice, but they are very sceptic to other people. They are very critical to ethnic and local social problems. They might have bad experience with loans because they are rather pessimistic in this issue as well.

Compared to other factors their opinions essentially differ from the following things. One of them is their negative attitudes associated with bank loans, which also seems to indicate that currently or previously they had a negative experience in loans. People belonging to this factor willing to sacrifice the most regarding to the better water management. They do not consider ethnic groups as problems probably because not so many ethnics live in that area where they live. Curiously, this group is the only one for whom it is not worth planting in the forest. They rather believe in short term profit. They are not future oriented, which can come from their pessimism. In their opinion, people are not aware of any local problems, so maybe that is why they do not support the common solutions, the common decision/making.

People in the *third factor* are *local patriots*. They take into account the interests of the locals and they are really attached to their residence. They support local cooperation and integration. Although their view on environmental problems is realistic despite they have an indifferent attitude towards water-related problems and there are not willing to sacrifice. In agriculture, they vote for natural farming, refusing modern technology. Their way of thinking is basically future-oriented, which is reflected in their accordance with solutions paying back in the long run.

They have some different views from others in the following issues. They are the only ones who consider tourism as an opportunity for the region. It is an interesting aspect, that the statement 'the border-land of the village should be owned by the villagers' got the most prestigious place in the order of preference in comparison with others (not in absolute terms).

Members of the *fourth group* are the most *future-oriented people*. They prefer nature-based farming, as they respect nature very much and do not want to make use of it for their own purposes. They are inspired by collective solutions, believe in community and are willing to participate in cooperative actions. They do not see the dangers inherent in credit. They are indifferent in relation to the farming. These people can be called solution-oriented.

The opinion of the fourth factor is significantly different on the following issues. They are the only ones, who think that 'farmers help each other in work and in trouble' so accordingly, they are willing to help and act. Their love to nature is characterized by the fact that the nature for them not only valuable, but they do not want to exploit it for their own use.

Limitations of the method are very important to mention here. A special feature of the Q-methodology is that it does not require a large sample size but this also means that the results can not be generalized, the survey is not representative. The comparison between samples is possible but the results are going to definitely different in every case. However, the strength and explanatory power of the results can be justified when the comparison between different samples lead to very similar results. In the case of this research, the Q-methodology survey was carried out in the Nagykörű region as well. We got very similar factors as to those in the Bereg region. Of course further surveys would be necessary to draw general conclusions but the similar outcome is remarkable. The respondents regarded the same values and priorities as important in relation to extreme weather phenomena, local patriotism, environment protection, everyday life and local economy.

## CONCLUSIONS

People's willingness to adopt can be a very important view in decision making situation, because if they want to do such an intervention which does not have the social support, its success a priori doomed to failure. The adaptation can also be examined in several ways. The result of the willingness to pay analysis related to land-use change is desirable to use in the frame of an integrated cost-benefit analysis, details of which can be found in another working paper. This is such a

result actually reflecting the views of local people, which can be used to quantify the benefits related to enhancing the wetlands area and its benefits.

The Q-method is good to capture the perceptions and feelings. The results can be very well integrated into those scenarios in which the changes of the water demand is estimated. The water needs depend on many factors, including the environmental awareness of the local population, their willingness to stay on the area, etc. The concrete data of sub-regions was used to predict the future changes of all of those factors.

Presumably, that the understanding of the local needs and experiences makes it possible to make better decisions.

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## ISSUES RAISED BY THE SELECTION AND INTRODUCTION OF A COMPANY INFORMATICS SYSTEM

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### **ABSTRACT**

*In order to ensure long-term success, companies place more emphasis on keeping their existing customers than they do on acquiring new ones. The application of company informatics system solutions makes possible the automatization and support of this strategy. The introduction of a company informatics system requires significant company resources. It may mean a significant burden both in terms of time and workforce. The success of the introduction is in the interest of all parties; therefore it is necessary that the company start the process of preparation and introduction with great care to avoid failure. The possible issues raised in the phases of this cycle can be grouped according to the viewpoint of the software producer, the distributor, and the company. The analysis and presentation of the reasons for failure can help companies considering implementing informatics system avoid failure. When potential problems are illuminated, they are easier to avoid. I have made a case study with a company and I would like to present my experiences and observations. In my lecture I will present the results of my research, the most frequent issues experienced, their causes and the ways to avoid them.*

Keywords: company informatics system solutions and processes, anomalies of introduction, objective aspects, support, education, case-study

### **INTRODUCTION**

In the last decades we could witness an extremely fast spread of IT systems. This is, on the one hand, due to great leaps in technological development, and on the other hand, due to the fact that the data processing needs of enterprises have risen significantly, which is in itself due to accelerated changes in the market and technologies. The importance of information is shown by the fact that enterprises spend in average 2% of their revenue on IT systems, and this rate is 10% in the case of market leaders.

From May 2004, Hungarian companies have to operate on the internal market of the EU. This opens up new chances, but means a stronger competition as well. Our competitors have great experience in optimizing management, improving customer fidelity and improving profitability despite rising costs. One important instrument in achieving these goals is the setting up of an IT background which performs a part of the job of the employees, thereby freeing up time for understanding customers and customer needs, improving the efficiency of production and stockpiling, and generally addressing problems that arise. Many managers (especially the leaders of small companies) find it unimportant to

introduce complex systems as the relatively simple processes of their companies do not seem to need robust solutions. However, even in the case of small companies it is worth considering whether the introduction of a smaller system based on standard procedures would yield advantages for the company.

There are several factors to be taken into consideration when choosing software. These include the hardware platform, the operation system, the type of the database management system, the number of languages supported, the time required for the introduction, the revenue of the company, the number of employees and of course the modules in the software. The comparison of several system shows that the functional setup of the various business management systems are similar. Usually the following modules can be distinguished (sometimes under different names): finance, asset tracking, sales, production, project planning, maintenance, quality assurance, HR, and maybe CRM.

### **BEFORE CHOOSING A SYSTEM**

Once the decision was met that it is necessary to introduce an IT system, the first step is to set up a professional team which participates in the process of selection as well. Among other tasks, the task of the team is to set up the system of criteria that will help in making an objective decision.

Various types of ERP and CRM systems are available on the market. Their number is growing, the supply is getting broader and broader. In order to choose the right system, the company has to know and model its internal processes (*Figure 1*). It has to know whether a general ERP system or some industry-specific solution would support its work best. It should have a clear picture whether it needs a customer and interaction registry or a process-based CRM system. One has analyze how specific the internal procedures are, and whether the needs can be fulfilled by an „off-the-shelf“ solution or custom software development is necessary.

It has to be identified which processes or process elements can be modified, replaced or reorganized. The introduction of new software always prompts for the rationalization of internal processes, as this is a good opportunity to reconsider and possibly improve the operative structure of the company.

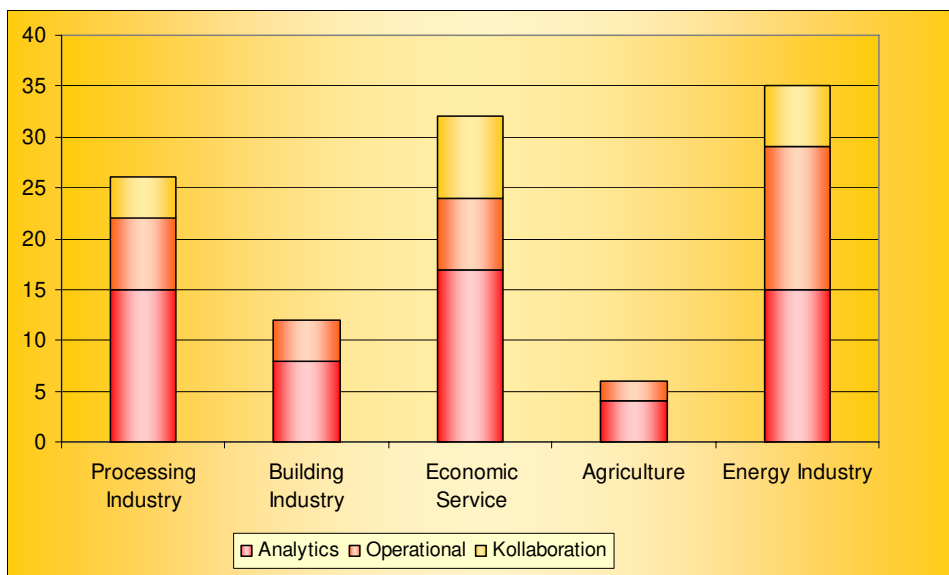
Of course, the required IT knowledge, too, may be an important factor influencing the choice. The time required for the introduction may be up to 3 to 6 months. In this time, employees may be subject to extra tasks. One has to weigh what burden the employees working at the various units can take, what IT background they have, how much learning and instruction is required in order to introduce the new software.

Naturally, the company would not like to lose its existing database on its products, customers, previous transactions, etc. Therefore, the issue of data migration is of great importance. However, one should not forget that this may be a good opportunity for clearing the database as well.

It is important to be informed on the support services and patching offered by the software company or the distributor. Setting up an IT system is more than installing the software. It may be necessary to establish the required infrastructure as well.

Figure 1

## CRM of system small and medium size companies in Hungary



Source: *GKIeNet*

These factors should be properly weighted by every company. A hierarchy of these factors should be set up and the offers of the market should be evaluated based on this system, leading to an optimal decision.

Our interviews with the leaders of IT companies show that there is a generic problem during the introduction of CRM systems: the lack of a client handling strategy. Companies usually expect the software to solve this issue, however, the software is only able to support an existing concept. In the case of the introduction of an ERP system, the same is true for the logics behind the operation of the company. These logics have to be clear, possibly simple and understandable to all. The product of choice will only fit to the operation of the company if the leaders have clear short and long term goals and choose a software according to these.

Often, however, it's not the real demands that influence the factors for decision-making. Other factors influencing the decision include the company size, industry-specific issues, the money available, etc. The company Forrester Research performed and published a study in 2006 analyzing the importance of various factors determining the selection of a CRM system. The results of the study clearly show that the most important factor is „easy usability” which is rather hard to define. „Colours” and „the window system” are neither the most optimal decision-making factors in the case of an investment of this magnitude. Of course it is important that the user should be able to easily navigate in the program, however, one should not forget that these software are not produced for home users (*IT-Business*, 2003).

On the other hand, „improving and supporting the operation of the marketing unit” was considered to be an important factor by less than half of those questioned. Also, the „support of the contact centre or the consumer service” neither got the prestigious first place. Interestingly, the least votes were given for the „support of channel management” whereas a CRM system greatly supports marketing the products through a variety of channels.

After the hierarchy of these factors was set up, and the opportunities were evaluated, and finally, the decision was made, the company faces new problems.

### **AFTER THE SYSTEM HAS BEEN CHOSEN**

After the company has chosen a product from among the innumerable options, the next step is deciding on the time of introduction. This starts a certain period of parallel operation, meaning that if the company previously had some kind of a business management software or an integrated IT system, that will be continued to be used, however, the new system will start to operate as well.

This test period may mean a significant burden for the employees, therefore, care should be taken that it does not last too long.

It is very important that the leaders on all levels should be convinced of the usefulness, effectiveness and necessity of the new software. The negative attitude of the employees is among the top reasons for failed introductions. Privileged access to information may lead to special positions within a company. However, after the introduction of an integrated system or a CRM system, it is much harder to have privileged information, as all information is easily available via access rights. Therefore, the previous „guardian” of the data loses its position. More generally, employees are often concerned during the introduction of a new system that their job will be superfluous and will be lost. However, experience shows that the introduction of new software do not necessarily lead to laying off employees. This is more due to reorganization or rationalization of processes. In these cases, the professional knowledge of the superfluous employee may be used in other areas – as the introduction of the new IT system brings new tasks as well.

It is very important that all employees should be informed before the introduction of the software on the reasons of the steps to be made, arguing for the necessity of the system and emphasizing its positive sides. They should also be formally involved in the decision-making so that they feel the software and the relevant projects their own. However, one should not forget that the system is not primarily aimed to help the employees. The entire company needs it to retain or to improve its market position. The customers need it to receive proper service, and the leaders need it to have real-time information.

It must be clear that an organization never wants to reorganize or change itself. This can only be performed through the leadership of external persons, and one has to strive to find an optimal solution to the resistance that will inevitably rise.

It is important that the leadership has a clear picture on the personal competences of the employees. The reorganization during the introduction of the software is a good opportunity to reconsider who fits which job. The introduction of the software may free up resources which may be put to use in other areas.



The limits of the project should be exactly defined, both in financial and development terms. To achieve this, the team members should express correctly defined, realistic and well considered demands towards the software developers. The introduction project should have a well planned, realistic schedule in which all steps of the introduction are detailed, indicating dates, periods and content. Timing may be of essential importance, as it is not indifferent in which period in the life of the company we put a burden on the employees.

### **CASE STUDY**

In the first quarter of 2009 a company leader had the idea that he would need a new business management system. That means that the company already had a basic, DOS based system that was mainly focused on asset tracking. The program did not support procurement or delivery in any form. This software was an own development which was used by everybody with the same access rights. An external system administrator added upgrades if it was necessary. It was operating on a server-client basis. It did not perform any bookkeeping tasks, bookkeeping was outsourced.

The introduction of the new software took almost a year; an industry-specific software was introduced.

The company was founded back in 2001 and when the software was introduced, there were 15 employees working in various separated fields. Therefore, everybody had (or would have had) different expectations towards the software.

The hardware was rather well developed at the time the introduction was started. This was due to the fact that the leader of the company felt the pressure for IT development and bought new computers every 2-3 years. However, this has led to a situation where there were great differences in the setup and performance of the computers. The computers were linked in a Novell network and this was not intended to be changed in relation to the introduction of the new software.

The database, which had been constantly growing in the last 8 years, contained the data of 8000 customers. However, the database was not cleared. The leader of the company claimed that 300-350 active clients may be in the database. Still, the database remained uncleared, and it was uploaded into the new system without any changes. Therefore it was impossible to separate the old clients and to motivate them for new purchases via a possible marketing campaign.

The manager (and company owner) negotiated with 2 companies. The IT companies were recommended by an other trading company with a similar profile. This is very typical in the case of industry-specific software. The chosen software was not completely unknown to them, as they have already used it from the client side for placing orders at business partners. They also made a reference visit at one of the partners to see the program in operation.

When making the decision, the owner had a loosely outlined set of preferences. He was sure that he needed a special software, as the introduction of the standard solution would have taken too long.

The decision was taken exclusively by the owner, the opinion of the employees was not asked in any form. The assessment visits of the IT company were performed in a

period when the company was executing a large scale investment. The assessment interview was mostly performed by the manager. The old software was introduced and through this, the demands towards the new software were displayed. The leader of the IT company did not take any notes and frequently stated that their software uses processes based on the same principles. It was clear that he is not planning a development but rather trying to make his existing software accepted exclusively. This way he forced the introducing company to make sometimes too big compromises.

The contract was drafted by the software company; it contained deadlines, conditions and schedule for a test period and the final activation, as well as payment conditions concerning the assessment, education and activation. However, the deadlines could not be kept as neither the IT company, nor the company requiring the introduction of the software handled the process as a project. Ad hoc deadlines were set, which frequently changed depending on the schedule of the participants. The IT company often missed the deadlines, probably due to the lack of resources. They were late for meetings, and it also happened that they cancelled the meeting on phone at the moment when it should have started.

Nobody was appointed as being responsible for the introduction at the company. The owner tried to arrange everything alone. This meant a great burden for him. He was often stressed and tired, and as a result, he did not handle well the negative reactions of the employees about the program. He did not take the emotional reactions of the overburdened employees into consideration. In the last phase of the introduction, every single employee was unhappy with the solutions offered by the software.

At last, the software was introduced with almost 4 months of delay. Costs surpassed the budget by approximately 15%. Neither the managers, nor the employees were entirely satisfied. This would not have happened if they would have considered the basic rules of the methodology of introducing new software.

## **CONCLUSION**

When a company decides to introduce an integrated system, it has to answer tough questions. A suitable team has to find solutions to a number of problems to achieve a result where, at the end of a successful project, a well operating software supports the work of the company, a software that fulfils as many needs as possible. One of the basic conditions of choosing the most appropriate software is understanding all processes and specialties of the company. One has to clearly see which steps can be eliminated or replaced, and which are indispensable for the effective work. In the case of some industries, the existing specialties demand such a high amount of specialized development that it is safe to claim that industry-specific software if the best to address the issues that arise here.

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## **OPPORTUNITIES AND THREATS TO LOCAL SUSTAINABLE DEVELOPMENT: INTRODUCING THE CASE STUDY OF THE SPECIAL NATURE RESERVE DELIBLATO SANDS**

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### ***ABSTRACT***

*The importance of sustainability for protected areas in Europe and for their potential development in the context of tourism has been recognized and supported by many political and social institutions. Nowadays, a wide range of European funds and programs (SEA, SEE etc.) actively encourage and finance projects that cover environmental conservation and proper tourism development for many natural assets. One of the most important projects in the Alpe-Adria-Pannonia region is the NATREG Project. This project connects six protected areas in Italy, Austria, Slovenia, Croatia, and Serbia, and establishes an international and multisectoral cooperation network for development of a Joint Strategy for Integrated Management of Protected Areas. The Autonomous province of Vojvodina, Republic of Serbia, has been recognized as a target area due to its well known nature reserve Deliblato sands, which can achieve both sustainability and commercialization through tourism development. This paper analyzes possible opportunities for and threats to supply factors, and it gives the recovery guidelines to secure an attractive and safe ambiance for tourists and visitors.*

Keywords: tourist destination's supply factors, environmental development, special nature reserve Deliblato sands

### **INTRODUCTION**

Sustainable development is a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations. The term was first used by the Brundtland Commission which coined what has become the most often-quoted definition of sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (*Smith et al.*, 1998).

During the 60s, especially 70s and as well 80s of the last century, attention of many countries and tourist industry was directed strictly on the economic aspects of tourism development and its direct, indirect and multiplier effects of domestic and foreign tourists spending. During the 80s at the latest, impact of mass tourism were seen as being threatening for the industry's viability itself. This has produced a

strong wave of criticism and made focus on issues of tourism development impacts on society, locals, and tourists themselves. Ever since the Brundtland report, sustainability has been a central theme in discussions on tourism. The arguments for new, alternatives forms of tourism, such as eco tourism, were strongly supported by the rhetoric of sustainability.

## **SUSTAINABILITY OF PROTECTED AREAS OF SERBIA**

The global economic crisis is present in almost all countries of the world and has hit most of economic sectors including tourism. Consequences of the crisis led to a decrease in revenues, rising unemployment, growth of population distrust and uncertainty in terms of further layoffs. Analysis of economic situation in protected natural areas of the Republic of Serbia shows even worse situation. Long-term adverse economic backwardness and social structure (primarily because of unused or inappropriately used the natural resources of exceptional value), are making them one of the most undeveloped areas in Serbia, and the global economic crisis is even more emphasized that situation.

Tourism has the status of a very important component in the national economy of many countries because it contributes to the improvement of all activities that are associated with it (such as transport, industry, agriculture, utilities, cultural facilities, handicrafts, catering, etc...), and therefore and the employment of the population. Therefore, the development of tourism in protected areas play an important role for total income for promoting long term sustainability of conservation of natural resources. Tourism of protected areas is often used as a link between protected areas and economic initiatives to promote nature conservation, particularly in developing countries. At the same time, the protected area is becoming increasingly significant component of tourist products. On the other hand, tourism can bring many damages as well. However, if the development and changes are inevitable in a specific location, tourism could be much less harmful alternative from many other activities, especially if tourism is well regulated, planned and based on the principle of sustainable development.

Sustainable tourism development is a concept based on a broader concept of sustainable development (Sustainable Development) and it is based on three major principles (*McIntyre, 1993*):

- Environmental Sustainability
- Socio-cultural sustainability
- Economic sustainability

More detailed these principals can be described as:

1. Being different - The key to successful and sustainable tourism is achieving a clear sense of difference from other competing destinations. This can be achieved by basing development and marketing on the attributes and strengths of the destination.
2. Achieving authenticity - The attractions most likely to be successful, and those with the greatest enduring appeal, are those which are genuinely relevant to the history, industry, culture lifestyle and natural resources of the district.

3. Reflecting community values - This means representing the past, present and future aspirations of the local community in a living and dynamic way rather than embalming the past. This involves listening to and responding to the community.
4. Understanding and targeting the market - Understanding the broad market trends and the needs of specific segments is critical. This involves the development of specialized products based on the inherent attributes of an area.
5. Enhancing the experience - Peoples motivation for travel is to seek something they cannot experience at home. The 'bundling' of attributes enhances the appeal of a place, and the likelihood of visitation.
6. Adding value - Adding value to existing attributes achieves a richer tourism experience and helps to diversify the local economy. This can include accommodation, sales outlets, conference facilities and dining in association with established industries.
7. Respecting natural and cultural values - Sustainable tourism development derives its form and appeals from these qualities, and adds to the special nature of the destination and in particular respects ecological processes.
8. Achieving conservation outcomes - A mutually beneficial alliance can be achieved between tourism and conservation. That is, through understanding and enjoyment come greater appreciation and empathy, advocacy and protection for the resource.
9. Having good 'content' ('telling the story') - Tourism development can interpret (present and explain) natural, social, historic and ecological features. 'Telling the story' provides a more rewarding experience and helps conserve the destination.
10. Achieving excellence and innovation in design - Good design respects the resource, achieves conservation outcomes, reflects community values, and is instrumental in telling the story. It is not just about form and function but also about invoking an emotional response from the visitor.
11. Providing mutual benefits to visitors and hosts - Tourism is not encouraged for its own sake. It is an economic and community development tool and must take into account the benefits that both the host community and the visitor seek.
12. Building local capacity - Good tourism businesses do not stand isolated from the communities they operate in. They get involved with the community and collaborate with other businesses and stakeholders to build a positive and self-sufficient capacity.

## **EUROPEAN INICIATIVES**

### **Program Natura 2000**

The process of EU integration has provided a large number of obligations, and in the context of nature that relates to the establishment of Natura 2000. New EU member states are obliged (on the date of accession of the EU) to submit a list of proposed areas for Natura 2000 with a corresponding database of each individual area. Each new member state brings their special characteristics to this area, and the lists of Natura 2000 species and habitat types increases. Areas must be chosen so as to ensure the sustainability of certain species and habitat types listed in the annexes.

During selection of areas, beside scientific, the entrepreneurial, social and cultural requirements are taken into account, as well as regional and local characteristics.

Natura 2000 is ecological network of the European Union which covers areas important for conservation of endangered species and habitat types. This network was created with the intention of preserving more than a thousand of rare, endangered and endemic species of wild animals and plants, and some 230 natural and semi-natural habitats that are listed in the Annexes of the two directives of the European Union (EU) on the protection of nature. So far, the ecological network Natura 2000 included about 30,000 area and they cover almost 20% of EU territory. Establishment and expansion of the Natura 2000 network is crucial for stopping the continuous process of natural extinction of species and biotopes, and depletion of natural resources (*Natura 2000 Networking Programme*).

It is important to emphasize that the Natura 2000 program does not pretend to strict and rigid conservation of nature but, in contrast, focuses on sustainable development that see human as an integral part of nature. This encourages additional financing of protected natural areas through limited economic activities such as development of sustainable tourism. Specifically, it is responsible tourism, friendly with the natural and cultural heritage and, at the same time, contributes to generating additional income for protected areas.

### **NATREG Project**

The NATREG Project is designed to develop all potentials of protected areas and to present it as an important instrument of biodiversity conservation and a great potential for social and economic development. It relies on the fact that the connection between nature conservation and development of protected areas is too weak in many EU countries. Therefore, the project's main aim is to acknowledge and promote the potentials of natural assets and protected areas as drivers of sustainable regional development, and to increase the perception of preserved natural environment as a key characteristic of sustainability.

The Project is connecting six protected areas in the Alpe-Adria-Pannonia region including Italy, Austria, Slovenia, Croatia and Serbia. The project's main objective is to establish a trans-national and multi sector cooperation network and to develop the *Joint Strategy for Integrated Management of Protected Areas*. Numerous trainings and knowledge transfer events are organized in order to achieve the project's main goal. Furthermore, by using the participatory approach, all relevant stakeholders from various sectors such as regional development, spatial planning, nature protection, civil society, etc. are involved in the development of integrated management plans for protected areas. In addition, the Strategy for Development of Ecological Corridors will be prepared before the conclusion of the Project, which is due on July 2011.

However, the following specific objectives of NATREG project can bring more effective long-term plans and activities for each country included:

- to develop the "Joint Strategy for Integrated Management of Protected Areas" (JSIMPA) through the established transnational and multisectoral network, in order to enable both protection of natural assets and sustainable regional development;

- to build knowledge capacity of project partners and stakeholders on integrated management and inclusive governance of PAs on project and pilot-area levels;
- to implement the “JSIMPA” through the preparation of “Integrated Management Plans of Pas” and “Integrated Development Strategies for Green Networks of Pas” in six pilot areas using the multisectoral participatory method and flexible (site related) approach in order to assure the Eurosite SMART management objectives;
- to prepare at least 18 follow-up project concepts for the further implementation of the concrete measures of management plans and development opportunities. Long term financing of protection measures will be planned and ensured through follow-up sustainable investments in PAs, which will preserve natural assets and biodiversity as natural capital; to raise public awareness on nature potentials as development factors; to build positive perception of nature protection measures and to enhance public participation in managing PAs;
- to enhance best practice and know-how exchange and to disseminate project results within and outside the project territory;
- to assist in effective implementation of EU legislation in managing natural assets and PAs in Croatia and Serbia.

When it comes to tourism development and sustainability in protected areas, NATREG indicated an aspect of its implementation that considered the development of specific tourism studies which can be applied to particular asset. Such studies are particularly suitable for making the right market conditions for priority environmental areas and presenting them as tourist destinations, which are nowadays extremely popular on international market.

## **CASE STUDY OF SPECIAL NATURE RESERVE DELIBLATO SANDS, SERBIA**

### **Protected areas in Serbia - Special nature reserve Deliblato sands**

Serbia had 6.59% of protected territories in 2009, while by the existing strategic plans (*Spatial Plan of the Republic of Serbia, National Environmental Protection Program*) and Spatial Development Strategy of the Republic of Serbia, it is envisaged to expand this network to 10% of the territory. Also future preliminary plan is that the area of environmental network will be up to 20% of the territory of the Republic (*Institute for nature conservation of Serbia*).

Deliblato sand is the Spatial natural reserve which is one of the last and the largest oasis of sand, steppe, forest and wetland vegetation on the Pannonian Plain. This spacious area, with a total area of 35,000 hectares, consists of numerous ellipsoidal sandy masses surrounded by fertile agricultural land. The reserve is adorned by natural rarities, especially the imperial eagle and the steppe falcon. The Ramsar site “Labudovo okno” is a habitat of swamp birds as well as the largest migratory area in this part of Europe. The richness of flora is reflected in 900 plant species, some of them relicts and rarities. Natural characteristics and uniqueness of this region make “Deliblato sands” suitable for recreation, hunting and fishing,



nautical and ecological tourism. Thick forests, sands and prairies are criss-crossed by a dense network of roads, trails and paths ([www.vojvodinasume.rs](http://www.vojvodinasume.rs), 2011).

### **Analysis of micro and macro environment**

Today, people are exposed to stress, bad nutritive habits and it can be said that the urbanization and environmental pollution brought a lot of negative consequences that affects lifestyle of population. On the other hand, higher level of standard and division of working hours indicated that more individuals are prefer spending time in nature. This affected the society by increasing awareness of the ecology and interest of saving the planet.

Forms of leisure time became more different than in mass tourism conditions so modern tourists are focused on specific supply conditions on destinations. They expect ecologically clean areas for the purpose of relaxation, education, entertainment, sports etc. Vacations are becoming shorter, more frequent and the tourists expectations are much higher and related to attractive factors which are framed by solid infrastructure, accommodation facilities and quality service.

According to some research in Europe, about 30% of modern tourist demand especially appreciates tourism offer based on the needs and values of sustainable tourism development, while 20% of demand is seeking for “green” destinations for their holiday. For example, Germany, which represents one of the largest market, 65% of tourists (39 million), expect ecological correctness on chosen holiday destination (*The International Ecotourism Society, Global Ecotourism Fact Sheet*, 2006).

Relying on the expressed tendencies about the eco friendly destinations, world tourism dynamics brought the phenomena of ecotourism, the new model of tourist activity which indicates strong connections between tourism and environment. It further affected tourist supply by developing the marketing concept intended to promote and inform consumers about the “green” tourism. Yet, the marketing management frame of each destination is based on more complex business concepts and principles which are related to differentiation process, careful approach to market segmentation and the improving quality of products and services, in accordance to sustainable development idea. The importance of sustainability is reflected in reducing the negative consequences of tourist traffic by using the potential of representing the tourism as an industry that does not harm the environment and the local culture of destinations. Instead of that, tourism can be put in function of preserving the local eco-system.

Given the increasing popularity of ecotourism on international tourist market and all the benefits of countries that represent it as a standard in their tourist supply, it can be concluded that the investment in development of products that are aimed on niche demand markets, could be profitable economic and political move for the country that tends to achieve successful position. According to the strategic marketing plans and activities, presented in *Serbia Tourism Development Strategy until 2015* and in *Marketing Strategy of tourism in Vojvodina*, great significance is given to developing all potentials in order to form the ecotourism products. According to these documents, the implementation of “green” vision can long-term improves the local environment and at the same time, makes representative profit from tourism.

### **Possibilities for economic development and recovery**

Funding of majority of protected area comes from the public sector. Unfortunately, the funds of majority protected areas are not sufficiently to cover all needs, focused on the development of tourism and nature conservation. Government funding is not enough to fully cover the financing of protected areas. This problem has been actively discussed in the nineties of last century when it was estimated that the reserves have an average of only 24% of funds in relation to total needed to mitigate all costs of maintenance (*Lindberg, 2001*). Even developed countries with a long history of protection of natural attraction cannot provide full funding by the state. The average government spending on protected areas in developed countries is \$ 2,058 per km<sup>2</sup>, while in developing countries this number is much lower, \$ 157 per km<sup>2</sup> due to the protection of nature is not taken as one of the priority issues of developing countries.

These facts indicate the necessity of securing additional income from the management of park, which therefore must be creative and flexible when it comes to finding ways of obtaining incomes. One of the most common ways is to generate additional revenue through the development of sustainable tourism. However, it should stress that revenue that come from tourism in protected area is only supplemental, which means that the state could not reduce the amount of funds intended for this purpose.

### **Potential sources of revenue in protected areas** (*Buckley, 2003; Sickle and Eagles, 1998*):

- Government funding (mandatory or discretionary)
- Public investments
- Multilateral and bilateral donor funding,
- Donations from philanthropic foundations, corporations and individuals
- Revenue-raising methods:
  - Protected area entrance fees
  - Recreation service fees, special events and special services
  - Accommodation, transportation and guiding
  - Parking
  - Equipment rental
  - Food sales (restaurant and store)
  - Merchandise sales (equipment, clothing, souvenirs)
  - Licences, permits, and taxes
  - Licensing of intellectual property
  - Sale or rental of image rights (e.g. for taking photographs)
- Cross-product marketing
- Private sector initiatives
- Cause-related marketing
- Biodiversity prospecting
- Commercial and bilateral debt-for-nature swaps
- Trust funds
- Carbon offset projects

The financing of special nature reserves in Vojvodina comes from Ministry of Environment and Spatial Planning, which covers the cost of labour and training of management services, purchasing equipment, acquisition of fixed assets, putting up boards, identifying boundaries, establishing information systems, waste-remediation of illegal dumps and landfills. Provincial Secretariat for Environmental Protection and Sustainable Development covers the costs of active measures of protection, education, and monitoring of the situation of rare and endangered species. However, as is the case in the world, funds are hereby provided are not sufficient to cover all the costs of maintaining the reserve. *Table 1* shows the current situation in terms of potential income sources for protected area Deliblato sand, Vojvodina and give guidelines of some income that could be better used.

**Table 1**

**Potential income sources for protected areas -  
Example of SNR Deliblato sand**

Potential income source	Applied	Partially applied	Not applied
Government funding programmes (mandatory or discretionary)	X		
Park entrance fees		X	
Recreation service fees, special events and special services		X	
Accommodation		X	
Equipment rental		X	
Food Sales (restaurant and store)		X	
Merchandise sales (equipment, clothing, souvenirs)			X
Donations, foreign aid		X	
Licensing of intellectual property		X	
Sale or rental of image rights		X	
Parking			X
Cross product marketing			X
Public investments		X	
Private sector initiatives		X	

Source: *Data obtained from representatives of "Vojvodinašume"*

**CONCLUSIONS**

Natural (ecological) environment is becoming a “target” of modern marketing and management in tourism. Negative impacts of mass tourism are increasingly manifesting through the environmental pollution, violation of biodiversity, underestimation of local customs and culture etc. Autonomous Province of Vojvodina, Serbia, with its natural resources (23 preserved and natural areas) can be

considered as a destination of great potential for developing and bringing the positive examples to international ecotourism market.

Since the Deliblato sands, as a key destination is already been recognized by representative EU programs and funds, it can be expected that further implementation of these projects will bring ecological prosperity and popularity of Vojvodina and Serbia in international tourist market.

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## AGRICULTURAL INVESTMENTS AND THEIR FINANCING DURING THE ECONOMIC CRISIS

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### **ABSTRACT**

*Special aid programs for the agrarian sector have been established to support EU candidate countries and to reduce the gap between them and older EU member states. In the meantime, investments are assisted by different EU Programs. Most of the investments span many business years and require countries to provide some of their own sources. During the economic crisis these investments were not stopped, since they had been implemented earlier. For fulfilling the “own sources” part of the investment, different types of supported credit can be used. The effects of the global economic crisis can be observed in figures for the 2009 business year in Hungary. Despite the crises, investments' net values increased, thanks to the Program named New Hungary Rural Development Programme. However, access to foreign sources was limited during the crises because of the straitened circumstances of the banking lending process. The rates were increased, making real own sources much more important. The results of the agricultural companies were far off those of previous periods as a result of lower market prices, changes in certain expenses, and the increased rates of foreign sources, but they were also affected by lower rates of production. The correlation of the following factors would be observed during the economic crises: the investments of the agrarian sectors, the source structures and the profitability, using the database of NAV and AKI.*

Keywords: agriculture, investment, finance

### **INTRODUCTION**

The natural opportunities of Hungary, such as the quality of the land and the climate favour for agriculture. Nearly two third of the total area is used for agriculture, half of them for harvesting grains. These excellent opportunities can be used to increase the productivity of the agriculture. It is essential to use the sources efficiently and to optimize the expenses to increase the profitability of the agriculture. One of the key elements is using the latest technologies which result better expense-profit rates and higher quantity of the labour. However, such investments can not be afford by the producers only by own sources. For significant investments there are more opportunities to be financed. The inner sources can be the profit and the calculated amortization while the outside sources can be the state and EU supports and different types of supported credit constrictions. The following analyze focuses on the relation between the different types of sources and the investments.

The current Global Economic Crises origins in the oversupply of the credits in the financial sector back in the August 2007 in the USA. Due to the Globalization and the

open financial markets the borders could not stop it and widened also to other part of the world and had an impact on other sectors. The crises reached Hungary in September 2008. From the beginning it was evident among the experts that the crises showed many similarities with the latest Economic Crises of the 1930's. The effect of the Crises can be measured imminently in Hungary due to its open market and dependence of the other countries. Banks reacted immediately to the changes with cuts of credit possibilities, changed credit conditions and increased interest rates. The credits in foreign currencies, especially in CHF and EUR based, became more and more expensive. Double effect of the devaluation of the Hungarian Forint and the increased interest rates increased the interest payments significantly within a couple of months.

The Economic Crisis also affected the agrarian sector. While the markets collapsed the supply and the market prices dropped. The Hungarian agrarian corporations can be supported by own force, support or credit. Until 2008 the amount of credits increased constantly and gave significant part of the financing of the sector. Due to the fact that the credit circumstances became severe the access to the new credits or prolong short term conditions got difficult. Furthermore the ongoing credits got more expensive due to the increase of the interest rates. The foreign currency based credits suffered significant exchange rate loss and has resulted in increasing interest payments. It was also observed in the agrarian sector.

### **INVESTMENTS IN THE AGRICULTURE**

The value of the investments of the agrarian sector can be available from several sources. The data collections of these sources differ so the comparison of them is limited.

While KSH uses the statistical reports APEH (from 2011 NAV) uses the information of the tax forms to cover the private farms and the corporate agrarian enterprises with its published data.

The data in *Table 1* shows the value of investments. It can be seen that the flow amount of the investments increased continuously and significantly during the observed period, out of which the investment of the machines represent nearly 50% in 2008 to 2009. Based on that it is possible that the investments in the machines effected mainly the agrarian sector.

**Table 1**

#### **Value of the investments (agriculture and forestry, flow data, million HUF)**

	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009+</b>
New Buildings and constructions	59 031	29 888	45 700	67 548
New machines	23 324	55 672	72 281	86 659
KSH database	111 160	116 076	148 973	185 652

+ Forecast

Source: *Ministry of Rural Development, 2010a*

In the next step the main lines of the financials of the agriculture enterprises were observed using the APEH database. It is important to note that among the investments only those can be seen which were not yet activated in the given year. The already activated investments can be found among the fixed assets and increased its value.

The value of the increase of the investments can be calculated using the year-ends opening and closing balances of the fixed assets deducted the amortisation. The details of the calculation can be seen in *Table 2*.

The difference of the closing balances of the books and the calculated closing balances represent the value of the investment in that certain year.

**Table 2**

**Changes of the intangible and tangible assets, million HUF**

	2006	2007	2008	2009
Opening balances of the tangible and intangible assets	762 504	808 061	843 292	876 866
Amortisation	85 123	85 454	92 889	100 394
Calculated adjusted closing balance	677 381	722 607	750 403	776 472
Original closing balance	808 061	843 292	876 866	1 026 947
Invested value	130 680	120 685	126 463	250 475

Sources: Based on APEH database

Observing the data in details it can be noted that increasement of investments can be seen also in the data of the Financials with an extraordinary high peak in 2009. It shows that although 2009 effected by the financial global crises but this can not be seen in the agricultural investments. Still significant investments took place in 2009.

It is important to note that the KSH data are only prognosis while the APEH database represents the real amounts it can be observed from both sources that the negative effect of global crisis did not happen in the investments of the agrarian sector.

The next step it is worth to observe in details the source of the investments. Based on the literature it can happen from two sources: long term foreign or inner sources. The foreign sources can be long term credits or investment supports while the inner source can be the amortisation or the taxed profit.

Besides the foreign sources the importance of the amortisation would be observed in details. A calculation was made to show the % of the amortisation and the profit used for investments besides the credits. The summary of the calculation can be seen in *Table 3*.

In the calculation the value of the investments were used as starting point. It was deducted by the investment support, which was totally used for investments. The difference showed the amount which needed to be support from other kind of sources. In order to finance the investment long term credits can be used. For the observation only the increasement was used. Those years when increasement took

please it was calculated with zero (theoretically no investment credit was used in that year). The remaining part of the sources need to be financed by the companies from own sources, amortisation or profit.

**Table 3**

**Sources of the investments, billion HUF**

	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Value of the investment	130.7	120.7	126.5	250.5
Investment supports (KSH database)	111.2	116.1	149.0	185.7
Other sources	19.5	4.6	- 22.5	64.8
Increase of the credits	0.0	0.0	2.2	23.5
Investment financed from own sources	19.5	4.6	- 24.7	41.3
Amortisation	85.1	85.5	92.9	100.4
Used amortisation	- 65.6	-80.9	-117.6	- 59.1

The remaining value of the investment deducted amortisation clearly indicates whether any profit or profit reserve was used for financing (positive value) or this part of the amortisation was not used for new investments (negative value).

After the calculation was made the results showed that each of the observed year this value was negative. It means that not the whole part of the amortisation was used to finance the new investments. Consequently increasing amount of supports were used to finance investments and replacements. Each observed year the amount of the investment support, the increase of the credits and the value of amortisation overreached the value of the investments. Furthermore the taxed profit was used to cover ordinary expenses not for financing new investments.

As it was previously indicated the increasement of the investment was exceptionally high in 2009 although the credit conditions strengthened.

The investments took place to assist the efficiency and the profitability. The next observation focused on the changes of the return on investment and return on the assets in the last couple of years (*Figure 1*).

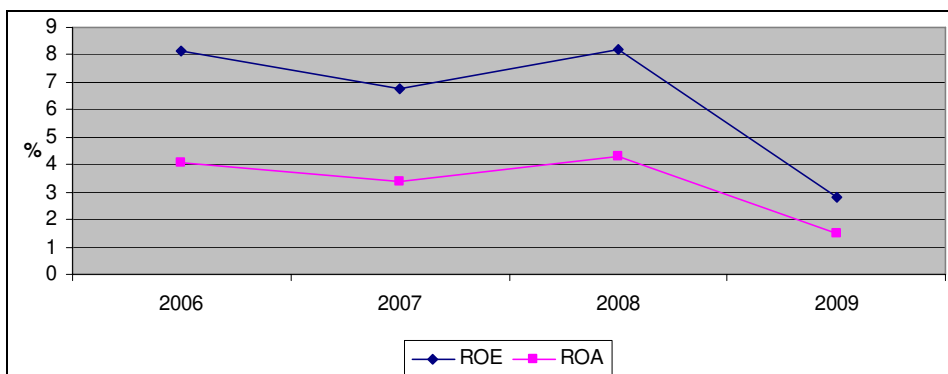
It can be noted that the profitability of the agrarian sector showed the same pattern as the change of the investment. It was changed in 2009 when besides the significant increase on the investments the profitability of the sector decreased in the same way. It was resulted by the drop of the trading profit effected by the deceasing incomes and activated own performances.

The increased amount of the investments resulted in increasement of the fixed assets and the total assets, including 2009 when the financial crises started. In this year the amount of the supports increased more than 50% (above HUF 200 billion) mainly resulted by the Programme named New Hungarian Rural Development Programme (Új Magyarország Vidékfejlesztési Program, ÚVMP). One of the priorities of ÚVMP is the renovation of the agricultural units, the agrarian environment, the technical support and the support of the young farmers.



Figure 1

ROA and ROE rates



ROA = Return on assets, *taxed profit/total assets*; ROE = Return on equity, *taxed profit/total equity*

Source: Based on APEH database

It also can be seen from *Table 4* that the value of the fixed assets increased during the observed period. (The data already shows the amount deducted by amortisation).

Table 4

Value of the fix assets and its changes compared to previous year  
(million HUF)

	2006	2007	2008	2009
Value of Intangible assets	9 439	9 912	10 793	12 295
<i>Changes, %</i>	<i>97.57</i>	<i>105.01</i>	<i>108.89</i>	<i>113.91</i>
Value of Tangible assets	798 622	833 380	866 072	1 014 651
<i>Changes,%</i>	<i>106.08</i>	<i>104.35</i>	<i>103.92</i>	<i>117.16</i>
Within investments (net value)	59 944	47 621	71 886	90 079
<i>Changes, %</i>	<i>97.20</i>	<i>79.44</i>	<i>150.95</i>	<i>125.31</i>
Value of Financial investments	61 870	65 183	70 725	68 673
<i>Changes, %</i>	<i>111.33</i>	<i>105.35</i>	<i>108.50</i>	<i>97.10</i>
Value of Fixes assets	869 931	908 475	947 591	1 095 620
<i>Changes, %</i>	<i>106.34</i>	<i>104.43</i>	<i>104.31</i>	<i>115.62</i>
Value of Amortisation	85 123	85 454	92 889	100 394
<i>Changes, %</i>	<i>107.03</i>	<i>100.39</i>	<i>108.7</i>	<i>108.08</i>
Value of Total assets	1 645 861	1 747 251	1 795 304	1 951 404
<i>Changes, %</i>	<i>103.80</i>	<i>106.16</i>	<i>102.75</i>	<i>108.69</i>

Source: Based on APEH database

The increase reflects that the investment directed not only to replacement but further development. The increasing amount of the amortisation also reflects to more investments. It also can be observed that the increasing investment did not realise as profit.

The increasement of the importance of the fixed assets within the total assets can be seen in the following ratio (*Table 5*).

**Table 5**

**Fixed assets ratio**

	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Fixed assets ratio	51.59	52.86	51.99	52.78	56.15

Consequently it can be stated that the increasement of the fixed assets was higher than the increasement of the total assets. In case of a productive types of enterprises the higher fixed assets ratio is acceptable compared to other types of enterprises.

*Table 6* shows the equity structure of the agrarian enterprises based on APEH database.

**Table 6**

**Sources, million HUF**

	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Own equity	820 992	878 133	938 629	1 053 362
Capital reserve	191 147	196 046	192 535	221 244
Balance sheet profit	55 560	49 807	65 133	22 775
Long term liabilities	256 223	235 970	238 166	261 631
Short term liabilities	502 435	570 647	554 200	568 999
Total assets	1 645 861	1 747 251	1 795 304	1 951 404

Source: Based on APEH database

The continuous increasement of the equity mainly resulted by the increasing of the balance sheet profit while the capital reserve had smaller role, except 2009. This year the balance sheet profit dropped to one third while the increase of the capital reserve was significant. The smaller balance sheet profit resulted by the unfavourable trading profit while the capital reserve increased by the investment supports. The reasons would be observed later in details. Out of the total liabilities two third is short term liability in which one third is supplier.

After observed the assets and the liabilities separately the connection would be in spotlight. Rates were used to realise the financing % of the equity, which includes the investment supports.

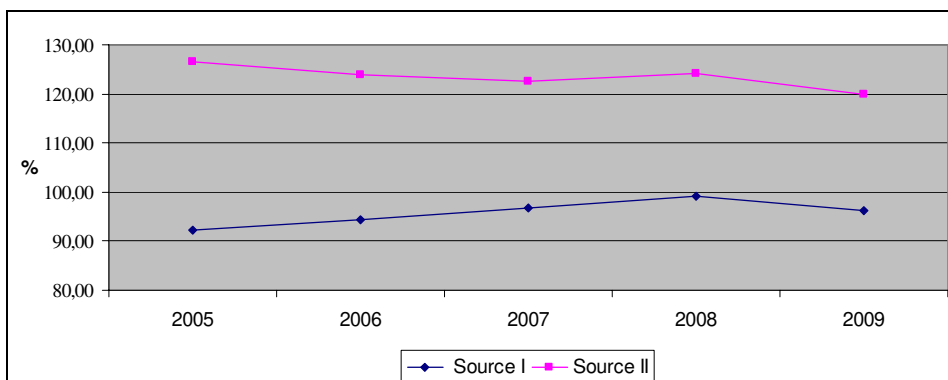
The rate of the equity and the fixed assets to the total assets was firstly calculated. It can be noted that the own equity is not enough to finance the fixed assets due to the increasing rates in each year.

The financing strategy of the agriculture sector would be observed by using financing rates. The Source I rate reflects of the % of the fixed assets financed by own sources (Equity / Fixed assets). With the assistance of Source II rate ((equity + long credits) / fixed assets) the Financing strategy can be checked (it can be aggressive, moderate or conservative). It can be noted that the calculation would not be punctual because one part of the inventories also financed from long term sources.

If the financing rate is over 100% it means that one part of the long term sources are used for financing current assets (it is a conservative strategy). Below 100% the long term sources would not cover all the long term investments so other sources need to be used for financing (this is an aggressive financing strategy). Figure 2 shows the calculated rates, and Figure 3 shows the equity and fix assets ratio.

Figure 2

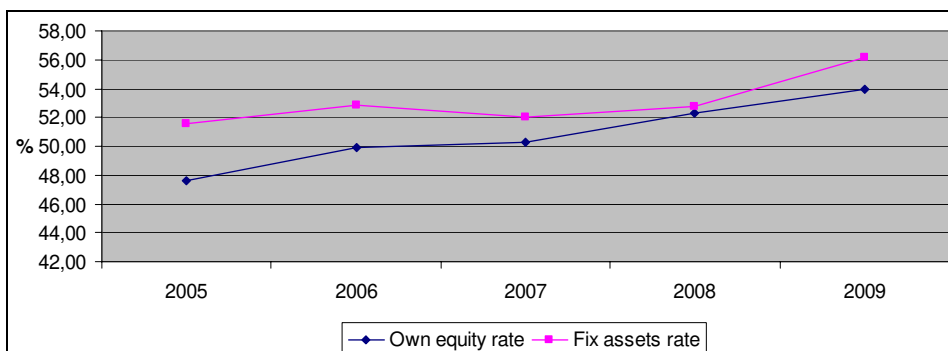
### Source rates



Source: Based on APEH database

Figure 3

### Equity and fix assets ratio



Source: Based on APEH database

It can be noted that own source was not enough to finance the fixed assets. However, the percentage of the long term liabilities for financing (above 120%) shows that the agrarian enterprises using conservative financing strategy. It means that one part of the current assets was financed by long term sources. The next step the different types of profits were analysed deeply, based on the database of APEH in *Table 7*.

**Table 7**

<b>Profits of the agrarian sector, million HUF</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Trading profit	78 577	81 190	115 161	65 486
Other incomes	209 801	210 832	231 740	247 337
Financial profit	- 25 912	- 24 442	- 33 910	- 33 945
Ordinary profit	52 665	56 748	81 251	31 541
Extraordinary profit	21 867	11 467	4 327	4 401
Profit before tax	74 521	68 223	85 469	35 901
Profit after tax	66 776	59 560	76 807	29 547
Balance sheet profit	55 560	49 807	65 133	22 775

Source: *APEH database*

As for the trading profit 2008 was a special year because the increasement of the profit with 40% compared to previous year. It was resulted by the increasing incomes and other revenues with 8% overpassing the increase of the expenses (6%). Add to the fact that the horticulture production in this year was exceptionally good. In contrary the Trading profit of 2009 was the worst year for a while. The expenses were decreased with 3.5% while the incomes dropped with 5%. However, the other revenues including the flow supports increased.

The financial profit showed negative value in the observed years as for the interest of the foreign sources can be found here (while the interest support can be booked in the line of other incomes). Moreover, the enterprises do not have such an interest or dividend income which balanced this negative effect (it is mainly the same for other sectors using HUF currencies - exempted the foreign exchange effect).

The effect of the financial crises can be observed also in 2008 as for the amount of the interests and the foreign exchange risks increased. In 2009 the financial expenses did not increased significantly.

Each year the balance sheet profit was positive in the observed period but a significant decrease can be seen in 2009 due to the unfavorable changes of the trading profit in that year. The difference between the balance sheet profit and profit after tax reflects on dividend payments. The percentage of it in the previous years was between 14 to 16% (around billion HUF 7-10). But in spite of the smaller profit result in 2009 the amount of the dividend was billion HUF 6.7, which was 20% of the profit before tax. It means that the rate of the paid dividend increased in 2009 because the owners would like to secure the profits.

## **CONCLUSIONS**

Consequently it can be seen that the paid supports had significant influence on the investments. In the last couple of years more billions of HUF flow and investment supports were paid yearly, which resulted continuous increasement on the amount of the assets and positive profit. Even the most difficult year of the crises the sector closed in green resulted by clearly to the supports.

It is enough to finance the performed investment from investment supports, long term investment credits and one part of the calculated amortisation. There was no need to use profit or profit reserve to finance investments even in the deepening financial crises (although in this year significant investment supports arrived to the sector). In 2009 the investments increased significantly but the crises finally resulted decreasing profitability.

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## LOCAL GOVERNMENT DEVELOPMENTS CO-FUNDED BY THE EUROPEAN UNION IN THE SOUTH-TRANSDANUBIAN REGION

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### ABSTRACT

*Since Hungary's accession to the European Union, the country has gotten significant encouragement from the Community Cohesive Base regarding its economic situation. The aim of our research is to introduce and evaluate the developments of The National Development Plan and the New Hungary Development Plan in the South-Transdanubian Region. The South-Transdanubian Region placed fourth on the list of state of development in 2008, furthermore, on the basis of estimated spending power parity, the GDP index was not even fifty percent of the average Union value in 2005. According to numbers from 2004, 18 out of 24 areas were underprivileged. These are the areas with significant opportunities for development. Within the frame of the research we analysed the submitted and supported applications, the number of contracted applications, the engaged amount, the required they requested and the amount they were given by the local government, the initial payments and the payment support amount. In the course of the project we compared the data of the Transdanubian Region with that of Hungary generally. We analysed the intensity of the supporting rate and that apportionment in the Operational Program. The data source for the Reporting and Query Framework was the National Development Agency JELEK. We evaluated the application funds absorption capacity of the Southern Transdanubia Municipalities, the application use efficiency in the target areas. The improvements and their key characteristics, and compared their data with that of regions at similar levels of development.*

Keywords: municipalities, development, competition, fund absorption

### INTRODUCTION

By the integration into the European Union, the Hungarian municipality sector has become the beneficiary of the EU Regional Policy. It means that since 2004 they could receive more financial support from the funds of the National Development Plan and since 2007 from the New Hungary Development Plan than earlier from the purely Hungarian development sources. The project proposals co-financed by the European Union can be the tools of establishing regional competitiveness, the important factors of which are the public services offered by the local governments. During the last seven years, the local governments could have adapted to the project proposal system and prepared for involving subsidies of the European Union. The rational utilization of subsidies considering also the local needs provides a unique opportunity for the local governments to improve the infrastructure, local economy and the well-being of citizens. The objective of the paper is to evaluate the project-

writing activities and the awarded grants with special regard to the success of municipalities in the Southern Transdanubian region compared to the data of other two Transdanubian regions and the averages of municipalities in terms of the regions. Our further aim was to draft the most important experiences concerning the development projects won by the Hungarian municipalities.

## **MATERIAL AND METHODS**

The data for the research were downloaded in March 2011 from the Report and Query System Tool that was operated by the National Development Agency. The source of the data was the Unified Monitoring and Information System (*EMIR*). The downloaded data are connected with those proposals and top projects only in case of which the site of investment is also registered. The data about the supported and contracted projects do not include those projects that were withdrawn or cancelled after the positive decision or concluded contract.

The basic statistical data are from the *MATÉRIA*® Hungarian Public Administration geographical information system database which includes the integrated data selected from the T-STAR database of the Central Statistical Office, data of the national census, election database of the Ministry of the Interior, as well as the database of the National Regional Development and Regional Planning Information System.

The research used the methods of data analysis and comparative analysis to examine the success of project proposals of municipalities in the Transdanubian regions and to compare the data with the national regional average. On the basis of this the examined regions were ranked.

## **REVIEW**

The National Development Plan is a strategic document, the construction of which was required for the utilization of European Union development sources. It was the precondition of applying for development grants from the Structural and Cohesion Fund. The strategic policy should have been drafted by those countries in which the GDP per head was less than 75% of the average of the EU. During the accession talks the European Union undertook to provide 5.1 billion EUR to Hungary from 2004 to 2006, out of which 2.8 billion EUR is structural and cohesion support (*Órsi, 2007*). The National Development Plan has been implemented in the frames of five operative programs, namely the Agricultural and Rural Development Operative Program (ARDOP), Regional Development Operative Program (ROP), Human Resources Development Operative Program (HRDOP), Environment Protection and Infrastructure Operative Program (EPIOP) and Economic Competitiveness Operative Program (ECOP). As regards the resource allocation, the first four operative programs preferred the less developed four regions, including the Southern Transdanubian region, while the latter ones primarily targeted the more developed regions (*Kullman, 2009*).

The objective of the Development Plan is to reduce the disparity in incomes compared to the EU average, to improve the life quality and to enhance the

balanced development of regions (Lóránd, 2009; NFH, 2004). The ARDOP operative program aimed the modernization of agricultural production, the improvement of human resources and processing facilities, the remedial development of the countryside and increasing the attractiveness of rural areas. The local governments – especially of the small settlements – applied mostly for the announcements of the LEADER programs in order to obtain rural development subsidies. The ECOP program has focused on the development of science-based economy and raising the innovation level. The municipalities in the examined region applied for extending the electronic administration, organizational development and construction of broadband networks.

The aim of HRDOP was to improve employment and labour competitiveness. The local governments of the examined regions applied for the priorities of the operative program in order to improve the level of human public services – health and education. The EPIOP funds were used for developing waste management, implementing green energy projects and expanding drinking water network. The priorities of RDOP included the development of backwarded settlements and districts, increasing the touristic potential, development of infrastructure for local public services and creating jobs.

Hungary has received 22.4 billion EUR from 2007 till 2013. It means 6875 billion HUF at price level of 2004, with 15% national co-financing (Huba-Varga and Dobay, 2007; Kleinheincz, 2006). In the frames of the New Hungary Development Plan 6 out of the 7 statistical-planning regions of the country belonged to the first convergency target field of regional policy. All the three examined regions could utilize the subsidy according to the objectives of this field. The most important comprehensive aim of the plan is the expansion of employment and competitiveness, in accordance with the Lisbon Strategy (Kengyel, 2009).

The Plan invited project proposals in six areas (economy, transport development, infrastructure, regional development, environmental as well as energetical development, and state reform), 5 sectoral and 7 regional operative programs (New Hungary Development Plan, 2007; Kleinheincz, 2006).

The Social Infrastructure Operative Program (SIOP) focuses on the development of education and health infrastructure. The Social Renewal Operative Program (SoROP) gives priority to the enhancement of employability, development of education and human resources, research and innovation. The Transport Operative Program (TOP) aims to extend the accessibility of regional centres, development of rail and intermodal ways of transport. The Economic Development Operative Program (EDOP) intends to fund the complex development of innovation and enterprises. The Environment and Energy Operative Program (EEOP) wants to set up green settlements, high-level waste management and protection of waters. The State Reform Operative Program (StROP) and Electronic Administration Operative Program supports the development of electronic administration infrastructure and reorganization within municipalities and state authorities.

The funding constructions of the seven regional operative programs (STOP, CTOP and WTOP in the examined regions) set up development objectives

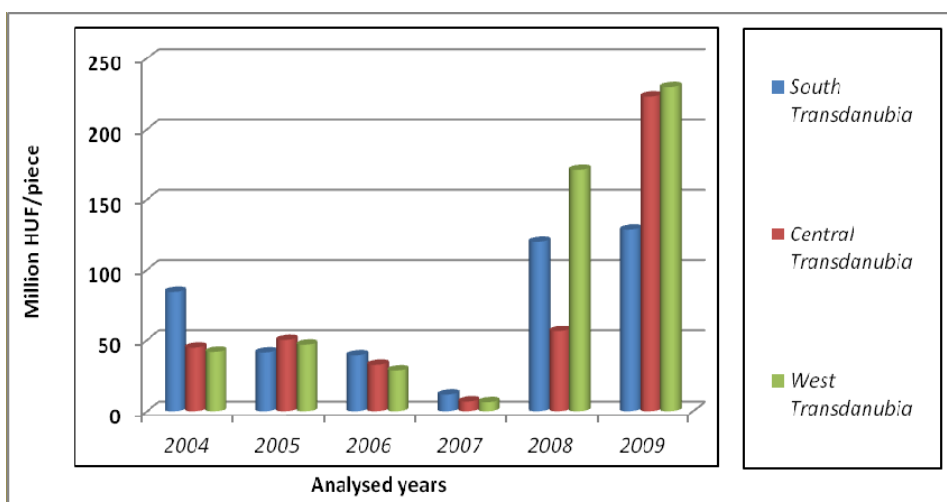


adjusted to the special situation of regions, including local and regional development, touristic development, transport development and development of public services (Kengyel, 2009). The New Hungary Development Plan was to work until 2013 but it was earlier replaced by the New Szécheny Plan according to a government resolution.

The regions in Hungary are different not only regarding their level of development but due to this, the level of subsidization is also different. The data of awarded grants in the three examined regions are compared on *Figure 1* for the period following the accession to the EU.

**Figure 1**

**Amount of grant per one EU project proposal in the three examined regions between 2004 and 2009 (million HUF/piece)**



Source: TEIR, 2011

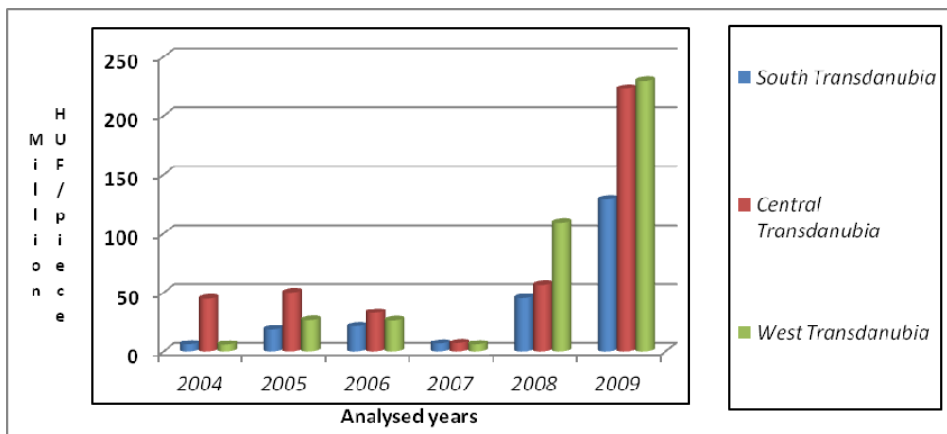
The degree of national subsidies is very significant in the examined three regions between 2004 and 2006, but following this, they depend on EU funds. The size of EU sources per one awarded project is shown by the *Figure 2* from which it is obvious that the tendency was decreasing until 2007, then there are extremely high values in 2008 and 2009. There are also great differences between the regions.

*Figure 3* shows the total grant per one project both from national and EU sources. It is also clear that the amount of grants were very high in 2008 and 2009. While, however, examining the grant per one EU project in the Southern Transdanubian region it was 119.6 million HUF in 2008, in case of all the projects it was 45.2 million HUF in the same region.

The difference can be due to the fact that the amount per an average Hungarian project was only 2.2 million HUF in the same year.

**Figure 2**

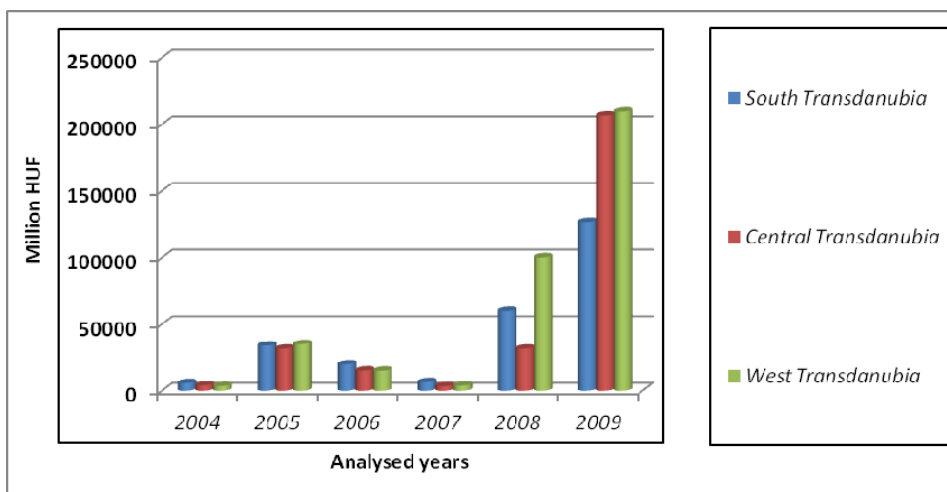
**Amount of grant per one project proposal (national-EU) per year in the three examined regions between 2004 and 2009, (million HUF/piece)**



Source: TEIR, 2011

**Figure 3**

**Amount of EU grant per year in the three examined regions between 2004 and 2009 (million HUF)**



Source: TEIR, 2011

As regards the amount of grants it can be observed that the value had a peak in 2009 in all the regions comparing to the previous period. Almost the same amount was paid for the support of the Central and the Western Transdanubian region,

while Southern Transdanubia was behind the other two regions by about 80 billion HUF. Examining the tendency from 2008 to 2009 it is obvious that the grants paid to Western and Southern Transdanubia doubled, while in case of Central Transdanubia quadrupled.

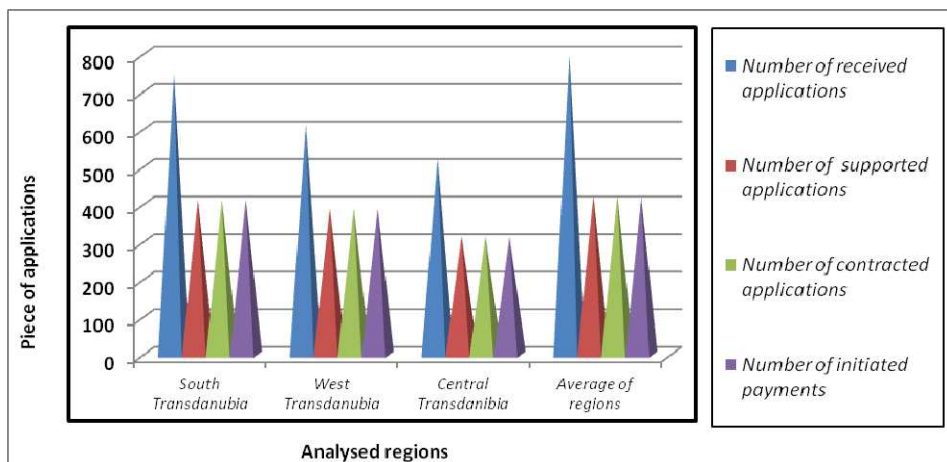
## RESULTS

### National Development Plan

Within the review of the National Development Plan we analysed first the activity of local governments in application (*Figure 4*). The measuring number was the number of applications submitted by the municipalities of the examined regions.

**Figure 4**

**Number of submitted, awarded, contracted and paid (payment at least started) projects in the examined regions (National Development Plan), as by March, 2011**



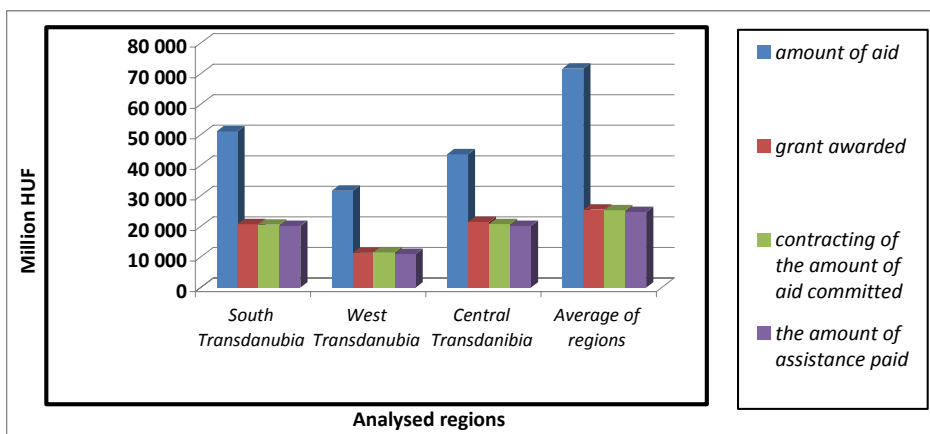
Source: *National Development Agency*, 2011

The data confirm that the Southern Transdanubian region is the most active regarding its municipalities, because the local governments of this region submitted the most project proposals and their successful projects were implemented completely because the number of contracted projects and projects where the transfer of the grants was started is the same. The results are worse in case of the other examined region, because some of the projects were not implemented.

The *Figure 5* introduces the grants requested, awarded and bound in subsidy contracts by the Transdanubian regions in the frames of the National Development Plan, as well as the actually transferred subsidy grants by the completion of the projects.

Figure 5

**Grants requested by the local governments, awarded, contracted and paid in the frames of the National Development Plan in the examined regions, in March, 2011**



Source: *National Development Agency*, 2011

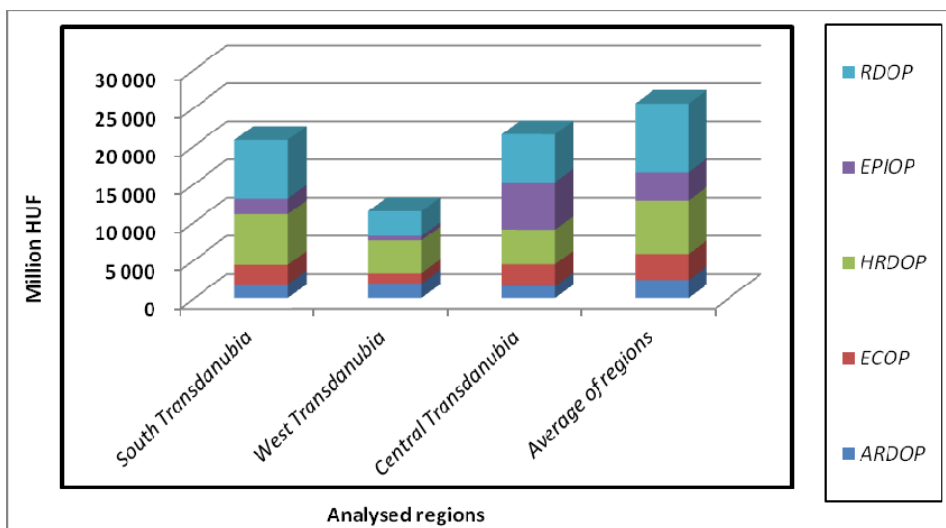
On the basis of these, the highest grants were required by the municipalities of the Southern Transdanubian region. These grants amounted to approximately 51.15 billion HUF, while the municipalities of the Central Transdanubian region applied for 43.3 billion HUF and the municipalities of the Western Transdanubian region applied for 31.68 billion HUF between 2004 and 2006. The result of none of the regions has reached the national average. As regards the awarded grants, the Central Transdanubian region received the highest grant, 21.5 billion HUF, and the local governments of the Southern Transdanubian region got the second highest grant, 20.75 billion HUF, among the examined regions. The funds bound in the contracts were also the highest in case of the local governments of the Southern Transdanubian region, it was higher by 11 million HUF than in the Central Transdanubian region. The reason for this was that the competent authority did not pay a significant amount, 1.2 billion HUF (6.03% of the awarded grant) from the total awarded grant.

Examining the success of applying for the funds, it is obvious that the local governments of the Central Transdanubian region could obtain the highest amount from the requested sources: almost half of the requested support, 49.27% was allocated for them. The Southern Transdanubian region was the second in this regard with 40.57% success rate. The success rate index was above the national average in all the examined regions. Out of the awarded grants, the actual payment was the highest, 97.5% for the municipalities of the Southern Transdanubian region. It is above the national average. It can be due to the lack of experiences at the local governments concerning the project system and fund-raising during the National Development Plan.

Figure 6 and Table 1 shows the distribution of awarded grants among the operative programs.

**Figure 6**

**Distribution of municipality grants awarded in the frames of the national Development Plan among the examined regions, in March, 2011**



Source: *National Development Agency*, 2011

**Table 1**

**Distribution of municipality grants awarded in the frames of the National Development Plan in the Southern Transdanubian region, in March, 2011**

Operational programme	Grant awarded, Million HUF	Own source, Million HUF	Total project cost, Millon HUF	Intensity, %
ARDOP	1 814.40	510.38	2 324.79	80.38%
ECOP	2 533.52	755.16	3 288.68	77.44%
HRDOP	6 269.86	232.22	6 502.08	99.54%
EPIOP	2 433.79	367.41	2 801.20	84.78%
RDOP	7 697.66	803.03	8 005.69	93.27%
<b>Total</b>	<b>20 749.23</b>	<b>2 668.21</b>	<b>22 922.44</b>	<b>88.49%</b>

Source: *National Development Agency*, 2011

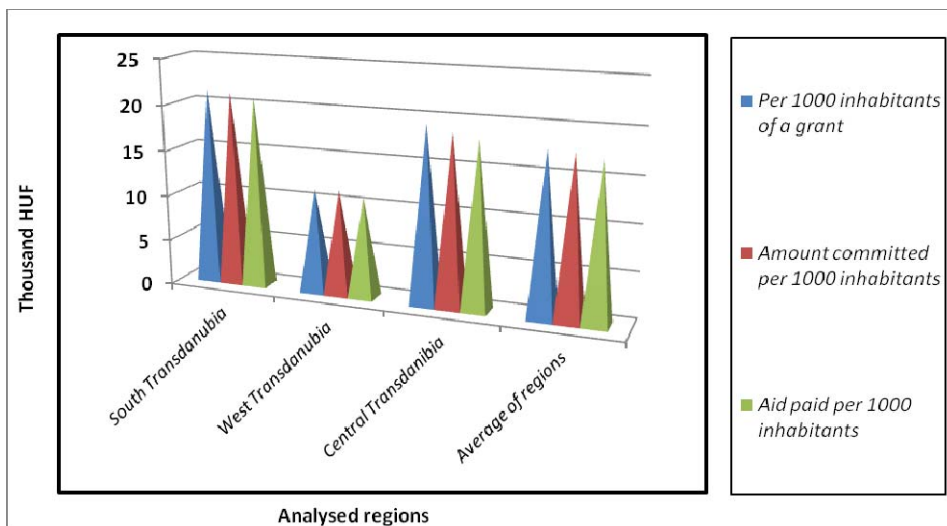
In case of the local governments of the Southern Transdanubian region – just like in case of the Central Transdanubian region – the highest grants were awarded for

the RDOP priorities. It amounted to 37.10% of the total awarded funds, which was the highest compared to the other two regions both in terms of ratio and amount. The share of funds paid for HRDOP priorities is significant, 32.09%. It was higher in proportion in case of the Central Transdanubian region but the largest amount of grant was given to the municipalities of the Southern Transdanubian region. Comparing the results of the Southern Transdanubian region to the national regional average, it is obvious that the awarded project grants were behind the national average in terms of all the operative funds.

Examining the finance aspects of grants awarded in the operative programs it can be stated that the local governments could obtain subsidy funds under very favourable financial conditions, since only 12.51% own source should have been ensured by the municipalities of the Southern Transdanubian region between 2004 and 2006 (Figure 7). The HRDOP priorities required the lowest own resources: only 0.63% of the total project costs, while the highest own sources should have been provided by the municipalities in the ECOP project proposals. The highest grants were awarded for ROP priorities to the local governments within favourable finance structures.

Figure 7

**Grants awarded per thousand citizens, municipality fund bound and paid in the examined regions in the frames of the National Development Plan, in March, 2011**



Source: National Development Agency, 2011

Examining the grants per 1000 citizens, we can see that the local government subsidies per 1000 citizens were the highest in the Southern Transdanubian region, exceeding even the national average. The reason for this was that comparing the

two examined regions, the population is lower and the grants relatively high in the Southern Transdanubian region.

The fund-raising ability of the local governments demonstrate to what degree they are able to obtain the available sources. *Table 2* shows that during the National Development Plan, the local governments of the Central Transdanubian Region were the most successful.

**Table 2**

**The proportion of municipal resources in the region for all paid, committed and allocated within the application source (National Development Plan) in March, 2011**

	<b>South Transdanubia</b>	<b>West Transdanubia</b>	<b>Central Transdanubia</b>	<b>Average of regions</b>
Grant awarded for local governments in ratio to the awarded grants in the region, in %	29.96%	19.25%	38.41%	25.96%
Amount of grant paid for the local governments in ratio to the grant paid in the region, in %	30.78%	19.80%	38.02%	26.06%

Source: *National Development Agency*, 2011

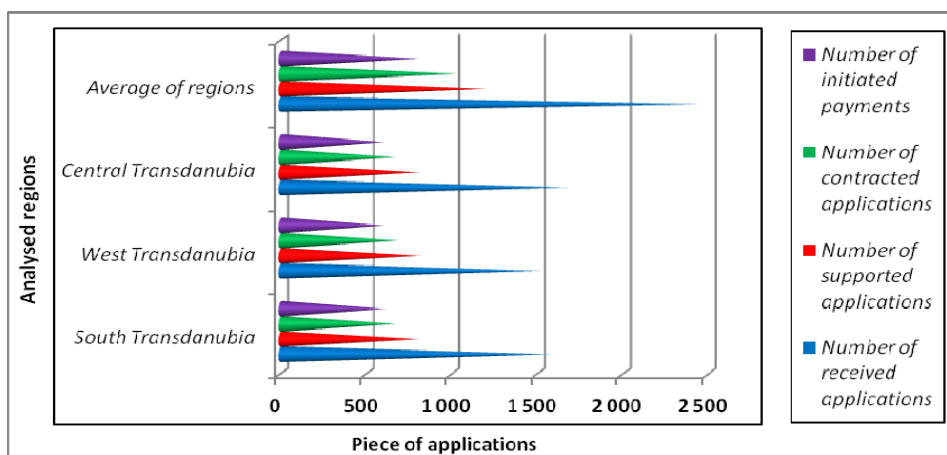
It can be due to the fact that the total awarded and paid grants were the lowest in this region out of the examined three regions. The local governments of the Southern Transdanubian region were the second in this rank, with a value higher than the national average. The third of the grant allocated to all the regions was awarded and paid to the beneficiary municipalities in this region.

**New Hungary Development Plan**

The examined data prove that the greatest number of project proposals were submitted and the grant contracts were signed by the local governments in the Central Transdanubian region, thus beating the Southern Transdanubian and Western Transdanubian region. The experiences in case of the National Development Plan are different. As regards the awarded projects, the local governments of the Southern Transdanubian region have the best results, as in case of the started payments, too. Similarly to the previous programming period the outcomes of the examined regions do not reach the national average. Examining the efficiency, it can be stated that the project proposals submitted by the municipalities of the Western Transdanubian region were supported to the greatest extent, 53.71% of their submitted proposals were successful. The rate of the contracted projects was the highest in this region, too, with 84.46% rate until March, 2011.

Figure 8

**Number of submitted, awarded, contracted and paid (payment at least started) projects in the examined regions (New Hungary Development Plan), as by March, 2011**



Source: National Development Agency, 2011

The New Hungary Development Plan has been offering new development sources for the local governments since 2007 (Figure 9). Until March 2011, the highest requested grant (225.26 billion HUF), awarded grant (132.18 billion HUF) and transferred grant (60.09 billion HUF) was awarded or paid for the municipalities of the Southern Transdanubian region, as against to the data of the National Development Plan, where the highest project sources were awarded and bound for the local governments of the Central Transdanubian region. It should be noted that there has been a change in the ranking of the two regions, because the grants requested, awarded and contracted by the local governments of the Western Transdanubian region were higher.

At the same time there was a lagging behind the regional average of municipalities similarly to the experiences with the National Development Plan. It should be highlighted that the grant paid until March 2011 has far exceeded the values of the two other examined regions, by 57.9% and 52.65%. It was due to the significant development actions that took place because of the series of events in 2010 connected with the Cultural Capital of Europe title of Pécs. High amounts of funds were transferred for these events, it amounted to 38% of total grants awarded to the local governments of the region.

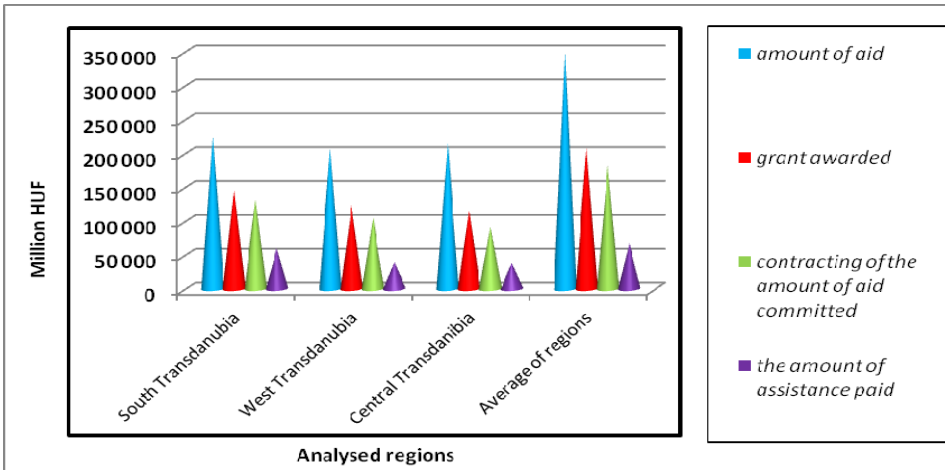
The local governments of the Southern Transdanubian region had the highest efficiency concerning the obtained grant because almost two-third, 64.40% of the requested amount was awarded to them. The progress of the projects is indicated by the fact that these indices are the highest in the Southern Transdanubian region because 91.12% of the awarded grant was bound in the contracts of local governments and 45.46% of the grant was paid until March 2011 (Figure 10) Comparing it with the data of the National Development Plan it can be stated that the awarded grant is higher in proportion to the requested amount in all the



examined regions. The greatest progress in this regard was at the municipalities of the Southern and Western Transdanubian regions which indicates the improving fund-raising skills and adaptation to the project proposal system.

**Figure 9**

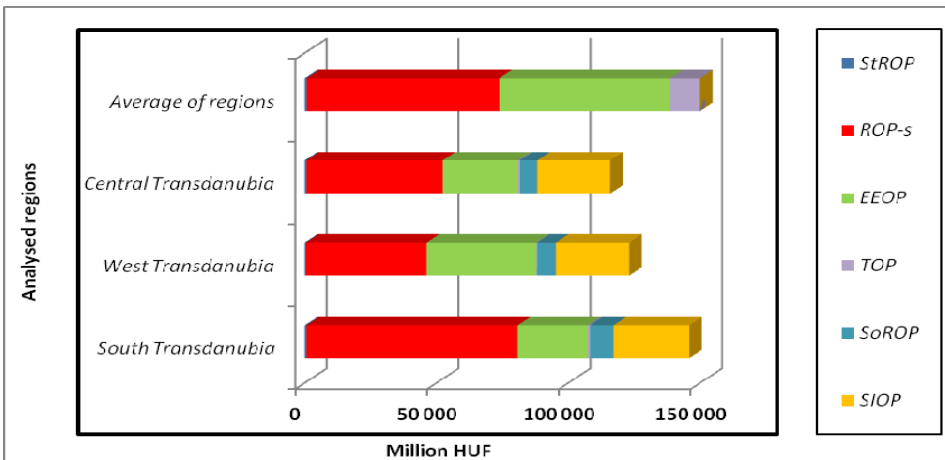
**Grants requested by the local governments, awarded, contracted and paid in the frames of the New Hungary Development Plan in the examined regions, in March, 2011**



Source: *National Development Agency, 2011*

**Figure 10**

**Distribution of municipality grants awarded in the frames of the New Hungary Development Plan among the examined regions, in March 2011**



Source: *National Development Agency, 2011*

As regards the distribution of awarded grants among the operative programs, the greatest funds (54.92% of the total awarded grants) were provided for the priorities of the Southern Transdanubian Operative Program in the frames of the New Hungary Development Plan (Table 3). The second highest amount was given for SIOP priorities and the third largest amount went for EEOP targets. In case of the other two examined regions, the greatest sources were also provided to the municipalities for the operative programs of the given region. The grants given for StROP and TOP priorities are small in the Southern Transdanubian region and the tendencies are similar.

**Table 3**

**The distribution of awarded grants among the operative programs**

<b>Operational programme</b>	<b>Grant awarded, Millon HUF</b>	<b>Own source, Millon HUF</b>	<b>Total project cost, Millon HUF</b>	<b>Intensity, %</b>
StROP	634.53	52.95	687.47	92.30%
ROP-s	79 875.40	22 912.58	102 787.98	77.71%
EEOP	26 407.00	7 479.76	33 886.77	77.93%
TOP	968.15	12.34	980.49	98.74%
SoROP	8 918.57	0.00	8 918.57	100.00%
SIOP	28 791.28	3 209.77	32 001.05	89.97%
Total	145 594.93	33 667.40	179 262.33	81.22%

Source: *National Development Agency, 2011*

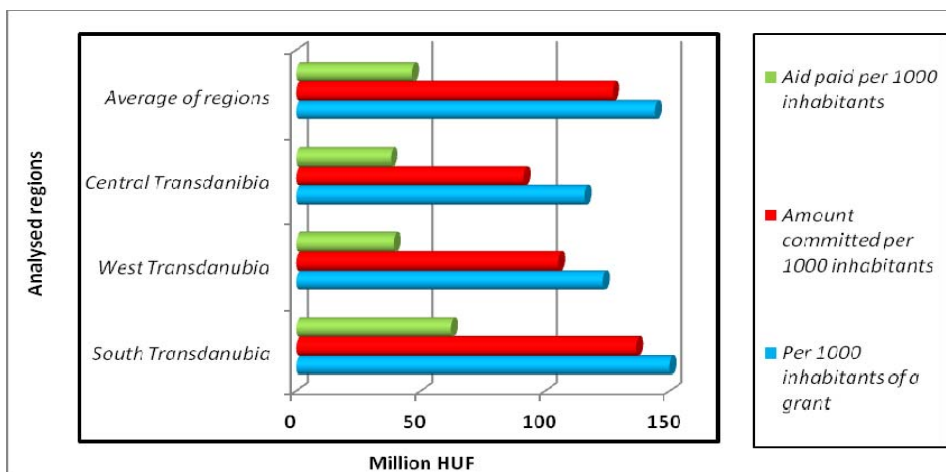
As regards the finance aspects of the awarded municipality grants it can be stated that the own source provided by the municipalities increased compared to the National Development Plan, because an average of 18.78% own source should have been ensured for the grants awarded until March 2011 according to the support decisions. The SOROP priorities are the most favourable for the local governments concerning the finance aspects because the announcement of the operative program aiming the human resources development covers the total costs of the projects. Among the examined operative programs the projects announced in the frames of DDOP and EEOP require the highest own sources from the local governments, 23.29% and 23.07% respectively until March 2011.

Regarding the grants per 1000 citizens, the tendencies are the same as in case of the National Development Plan: the highest grants per one citizen, the highest amount bound and paid was in case of the municipalities of the Southern Transdanubian region (Figure 11).

Thus this region preceded the two other examined regions and exceeded the regional average of local governments. The reason for this was that the local governments of the Southern Transdanubian region had the highest awarded and paid subsidies among the examined three regions and the population is the lowest in this region.

**Figure 11**

**Grants awarded per thousand citizens, municipality fund bound and paid in the examined regions in the frames of the New Hungary Development Plan, in March, 2011**



Source: *National Development Agency*, 2011

In the frames of the New Hungary Development Plan, until March 2011, the local governments of the Southern Transdanubian region could obtain the greatest sources in proportion to the total amount of grant, in contrary to the National Development Plan (*Table 4*).

It is because this region received the lowest support among the three examined regions. It can also be due to the high amount of funds paid for the European Cultural Capital projects of Pécs that has already been transferred because of the complete realization. In case of the Western Transdanubian region, the rate of municipality subsidies is higher than in case of the National Development Plan, but the ratio of the local governments of the Central Transdanubian region is lower. It can be explained by the increasing share of the other beneficiaries, who absorbed significantly higher amount of funds than during the former programming period.

**CONCLUSIONS**

Evaluating the projects won by the local governments of the Southern Transdanubian region and cofinanced by the European Union, it can be stated that altogether 165.82 billion HUF grant was awarded for the municipalities of the region. Out of this amount, 80.30 billion HUF had been paid until March 2011. Out of the Transdanubian regions, the local governments of the Southern Transdanubian region received the highest amounts of development funds, although it was still behind the calculated regional average. In spite of this, in our opinion, the municipalities of the region have adapted well to the project proposal system, prepared for the absorption of development funds, because 97.30% of grants awarded in the projects within the National Development

Plan Operative Programs were actually paid to the local governments, which was the highest value in the examined regions. In addition to this, it can also be stated that the realization of projects announced in the frames of New Hungary Development Plan are also in advanced state because almost half of the awarded grants have been paid for the municipalities until half of the programming period. It is also above the performance of the other two examined regions.

**Table 4**

**The proportion of municipal resources in the region for all paid, committed and allocated within the application source (New Hungary Development Plan) in March 2011**

	<b>South Transdanubia</b>	<b>West Transdanubia</b>	<b>Central Transdanubia</b>	<b>Average of regions</b>
Amount of grant awarded for the local governments in ratio to the grant awarded in the region, in %	45.93%	27.74%	29.04%	35.25%
Amount contracted by the local governments in ratio to the amount of grant contracted in the region. in %	47.95%	26.30%	26.06%	34.56%
Amount of grant paid for the local governments in ratio to the grant paid in the region, in %	50.20%	24.43%	28.38%	34.07%

Source: *National Development Agency, 2011*

Reviewing the target areas of developments, the municipalities of the Southern Transdanubian region received grants in both programming periods mostly for the priorities of the operative programs aiming the development of the region, including the catching up of the region, enhancement of touristic potential, rehabilitation of settlements, ensuring easier access to public services, development of transport infrastructure and investments in Pécs connected with the program series of Cultural Capital of Europe in 2010. The local governments obtained considerable funds for developing and updating the educational and health infrastructure and expanding the public services in these areas, as well as in order to

reach progress in environmental protection and safety, life quality in settlements and energetical modernization.

Considering the finance aspects, the local governments and their institutions could realize the development projects under favourable conditions, at a medium high support intensity. Higher own source level was needed primarily in case of construction investments. In order to finance these investments, the local governments could involve external sources and apply for the Own Source Fund.

In summary: the Cohesion Policy of the EU has projected the possibilities of renewal and catching up for the local governments of Hungary, too, in case of rational utilization, which could be realized for most of the municipalities in the Southern Transdanubian region. The development projects, however, will have a long-term impact. The survey of the actually favourable or unfavourable effects, the evaluation of their financial feasibility should be the target of further research.

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## REGIONAL DISPARITIES OF INCOMES IN SOMOGY COUNTY

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### **ABSTRACT**

*Somogy County has always been an underdeveloped rural area of Hungary with a sparse spatial structure. Its socio-economic indicators are still among the weakest ones in the country. This peripheral area in the western part of the Southern Transdanubian Region is also internally differentiated. Regional disparities and the polarization of development are reflected in average income levels. When per capita income categories of settlements were projected on a cartogram, a specific spatial pattern appeared. The prominence of the county seat, of settlements by Lake Balaton, and of several small towns shows their relatively central position, while they are located predominantly on the edges of the county. Smaller villages predominantly occupied the extremes. Some were on the top of the income categories, but most of them were in the low end. Some of them are among the poorest villages of Hungary. Examining the sources of income it is clear that higher levels of income originate from wages, salaries, or from the profit of investments, while low incomes come in the form of social benefits from the state. This shows the role of social structure combining with regional position in forming the income-gap. Demographical processes such as the migration of the qualified labor force to centres and the higher birth-rate at the margins of society may lead to further widening of regional differences. Development continues, despite the crisis, in the centres, while regional ghettoisation escalates problems on the periphery.*

Keywords: regional disparities, income, spatial texture, centre–periphery relations

### **INTRODUCTION**

Spatial disparities can be described by several methods, although the system of the regional statistical data imposes considerable limitations. Statistics on GDP in Hungary, for example, are only available at the county-level, thus, this indicator is not suitable for the analysis of the micro-level regional differences. By quite a few indicators, the smallest aggregating unit is the micro-region. The centre-periphery contexts can clearly be shown by income disparities directly determining standards of living, and these are also available at the level of settlements (Rechnitzer, 2008). Beyond the concentration of well-paid jobs in the cities these are also related to the willingness to commute and to the demographic structure.

The income differences in Hungary are reduced by a considerable social net. The system of the various government aids, benefits, allowances and pensions imposes a whacking burden on the state and, indirectly, on the economy as well. These social incomes show regional differences both throughout the country and on the lower spatial levels, too. The regional difference appearing in the wage incomes and the social benefits, that is, the configuration based on the income types, may be in correlation with the social structure as well as the economical positions of the settlements.

Somogy County by the last statistics could only overtake the traditional depressed Szabolcs-Szatmár in the per capita personal income after taxing. This, together with the above, makes its peripheral position in the regional and economic structure of Hungary clear (Csatári, 2005). The rolling area between Lake Balaton and the River Drava – which is the western part of the Southern Transdanubian Region – has always been one of the underdeveloped regions of Hungary with a sparse spatial structure. Not even capitalist modernisation and socialist development was able to change this. Somogy County comprising almost the whole land of Inner- and Outer Somogy is the fourth largest county, but it is also the most sparsely populated. Population density is only half of the national average. Its demography has long been characterised by natural decrease and a mainly negative migration balance.

It has the third or fourth lowest Human Development Index (Csíte and Németh, 2007). The urbanization ratio is 50%, which is one of the lowest values in Hungary, however, on the basis of their population and infrastructure half of the cities could only be listed among bigger villages only. Half of the villages are micro-settlements with a decreasing population, providing unfavourable standards of living (Beluszky and Sikos, 2007). Two-thirds (i.e. 160) of the settlements in Somogy are at a disadvantage, so they are among the recipients of higher regional development benefits (Faluvégi, 2003). This again ranks the county in the fourth place regarding the number and ratio of underdeveloped villages and their population.

Considering the ability to create economic value, Somogy is the fourth weakest again. The per capita GDP is 61.7% of the national value, and only 38.6% of the EU27 average. Moreover, this value has decreased by about 7% compared to the national average and Somogy has fallen back by three positions in the county ranking since 2004. So the development trend of the county shows a fast decline (Nagy, 2005). GDP figures are published only on the county level, so this indicator can not be applied on a micro level analysis of regional differences.

On the level of settlements this rural area, of course, is also differentiated. Our paper aims to examine the structure of regional income disparities by the average income level and the income sources of the settlement's population and makes an attempt to point out the causes and the social factors influencing them.

## **MATERIALS AND METHODS**

In our analysis, we have relied on the databases of the Central Statistical Office and the Income Index calculations created by CID for marketing purposes. Both databases include the average per capita income data of the population of 245 settlements. CSO data comes from the National Tax and Customs Administration (NAV) of Hungary. The figures are based on earned income and profit of investments after taxes. The II of CID calculates the total disposable incomes based on wage and profit incomes as well as social benefits received. The income levels of settlements are represented in a cartogram. Naturally the figures of the towns were generally higher than those of the smaller settlements, they were analysed separate. However, it was the smaller settlements that produced the highest and the lowest income level, too.

We compared the CID total income values with the CSO data referring exclusively to incomes after taxing. We calculated the difference and the ratio of

wage incomes and social benefits, which shows the relative dependency of population from the state. We typified the settlements by income level and the income source. We created three categories in each aspect, and thus created nine categories altogether. The settlements in the categories were demonstrated in tables and their types were represented in a cartogram to study the spatial texture. The social status of micro-settlements with extreme incomes was analysed further by comparing data of the lowest and highest income deciles. The territorial distribution of “rich” and “poor” villages was represented in a cartogram. The most typical demographic and economic data were made visible with the use of diagrams. Analysing these, the possible reasons of differences have been identified.

## **RESULTS AND DISCUSSION**

The monthly per capita wage and profit income of the population in the county by the CSO shows great differences on the level settlements. The county average was around 44 thousand, which ranged 6-64 thousand forints. The income gap had the value of 10.4. The monthly per capita total spendable income by CID is 73 thousand forints, which would equal 270 euros calculating with the current 270 forint-euro rate. The average salaries of the settlements range are around 34-107 thousand forints. The value of the income gap between the two extremes is 3.2. The two series showed a 0.8 correlation with each other, which can be perceived as a difference between the spatial distribution of social benefits and incomes.

The Robin Hood index was calculated on the basis of the 245 settlements, and its value was by CSO data 11.2 and the by CID data 6.6. The difference between the two values shows the significant cohesion effect of social benefits in Hungary. It should not be forgotten, however, that the initial database contains income received in the form of social benefits, with the aim of decreasing inequalities.

The spatial distribution of the income level categories of settlements is illustrated in *Figure 1*. A remarkable feature of the territorial texture is the marginal location of settlements with higher incomes. The prominence of Lake Balaton in the northern area and that of the county seat in the east are clear. The line of small towns and medium sized villages near the south-western border constitutes another zone with better income levels. There is a further belt with higher incomes along the eastern border between Kaposvár and Siófok. The negative pole lies in the middle of the county like a north-south axis of poverty, where even the towns are far below the average incomes. (They became towns only recently.) The specifically inverse texture of Somogy can partly be explained by its natural boundaries and partly by the marginal position of the main transportation lines. Let us investigate the two major areas in more detail.

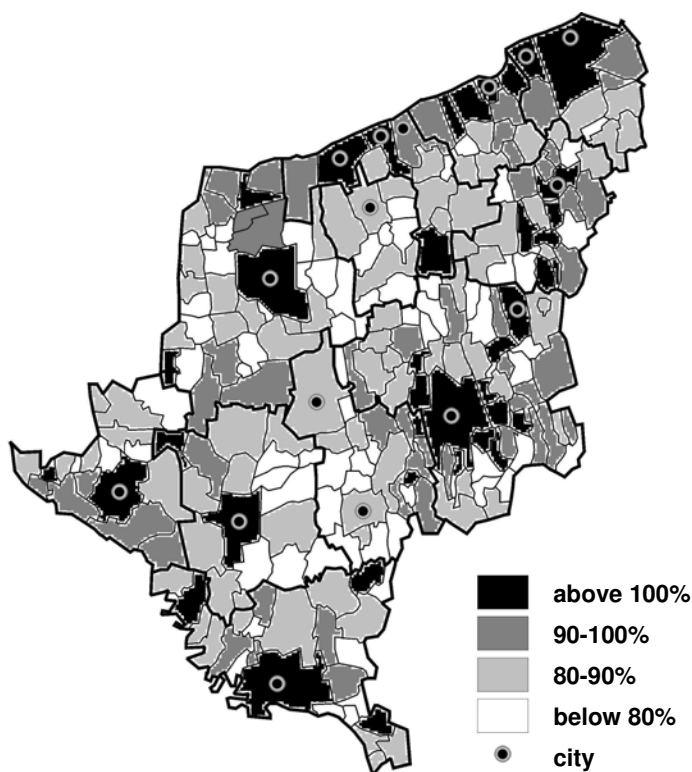
Kaposvár is the second largest settlement in the South Transdanubian Region. The urban region around it even stretches into Tolna County in the direction of Dombóvár. Although Kaposvár managed to attract some regional functions, it plays a subordinate role to Pécs. In terms of administrative roles it is the 11<sup>th</sup> most important in the Hungarian urban network but its economic importance places it only in the 16<sup>th</sup> position (*Csapó*, 2008). Although its situation can be considered



good on the basis of its state of development, in dynamic indicators it is among the tail-enders. Together with Salgótarján and Békéscsaba it is the greatest “loser” according to *Lengyel and Rechmitzer* (2000)’s examination of competitiveness. Despite the success propaganda of the city administration it has continued backsliding. This is consistent with the relatively low income, only with Miskolc, Hódmezővásárhely and Salgótarján having lower values among municipal towns. Kaposvár could only overtake Salgótarján in the increase of wages.

**Figure 1**

**Per capita net income of settlements in Somogy**



The reason is that as a result of the Hungarian transportation network development Kaposvár lies far from the modern mainlines of traffic, and the poor state of secondary main roads makes it difficult to reach it. The Dombóvár-Gyékényes railway would also need renovations, though its importance is subordinate now, as the once dominant role of railways in the spatial structure has now been strongly reduced. The civilian use of the Taszár military airfield could have been an opportunity for Kaposvár, however, it did not fit either national or regional interests, so it remained only an idea. The M9 is expected to reach the city only by 2015, leaving Kaposvár the last among county seats to be connected to the national highway network. Even so, it is going to be a modern connection only to the east, as the western part, which could promote connections to

the EU, is expected to be continued only around 2020. Till then the county has to manage with old, narrow roads with speed limits and slow traffic through populated areas. Potential investors might know this, as they avoid the city, while its internal resources are not sufficient for dynamic development.

The agglomerating zone along the Lake Balaton area with its special tourist roles is in internationally prominent position. The second most important branch of the Saltire (Saint Andrew's Cross) determining the development of Hungary runs here. It is the Adriatic axis connecting Budapest with Padania (*Tóth et al., 2005*). Its significance will grow with the strengthening of the north-eastern Budapest-Kiev-Moscow axis. Due to the M7 motorway and the Zagreb-Budapest railway line it has an outstanding position in transportation geography. Balaton Airport can be quickly reached from most of its area. This is the most dynamically developing zone of the county. In particular Siófok is outstanding: it is relatively near to the capital, and it is in the forefront among medium-sized towns. Virtually, it can be considered to be the dynamic growth pole of the county. As a result of its relatively small size and location its regional "spread" effect covers only the north-eastern part of the county. The high-income belt between Kaposvár and Siófok is partly attributable to it.

We constituted three categories each based on the income level and the proportion of calculated social benefits, which we got from the difference of the two income data lines. The segment of the triple classification based on the two 2 criteria creates nine categories altogether (*Figure 2*). We tried to draw the boundaries between the categories along main fault lines of the graph after experimenting with several options. Finally, we decided to consider the values on the figure below to be the most suitable, since we may have formed a roughly identical group regarding the number of elements they contain. The 72 thousand forints having found as the borderline between high and medium income is roughly comparable to the county average, as opposed to the 58 thousand forints, which was on the border of medium and low incomes and equals the minimum net salary back then. To be noticed, that 66 thousand forints were the subsistence level in 2008 according to the CSO, which was typical only in 50 settlements, even though 70% of the population lives in these villages. This correlation is represented by the trend line in our *Figure 2*, namely that high income mainly comes from high wages and investment, while low income usually means social benefits. The position of the data dots is more or less scattered, and there are just few that go against the main trend.

The accurate number of the settlements assigned to each category is shown in *Table 1*, where cities are identified too. Based on the number of the settlements, the most typical was mixed and medium income with more than 25%. Those living on low social benefits constitute 20%, but villages living on medium wage incomes were over 15% too. 28 of the high wage income group composed of more than 10% of the total but two thirds of the cities can be found in this category. The other groups are less significant with two cities in the other high income categories. The per capita income of three cities shows only medium and below-average figures. Their effort to become urbanized may be problematic based on the criteria including income levels though other factors such as their long-term regional influence stand for them (*Beluszky and Györi, 2006*).

Figure 2

Settlements in the space of income level and income source

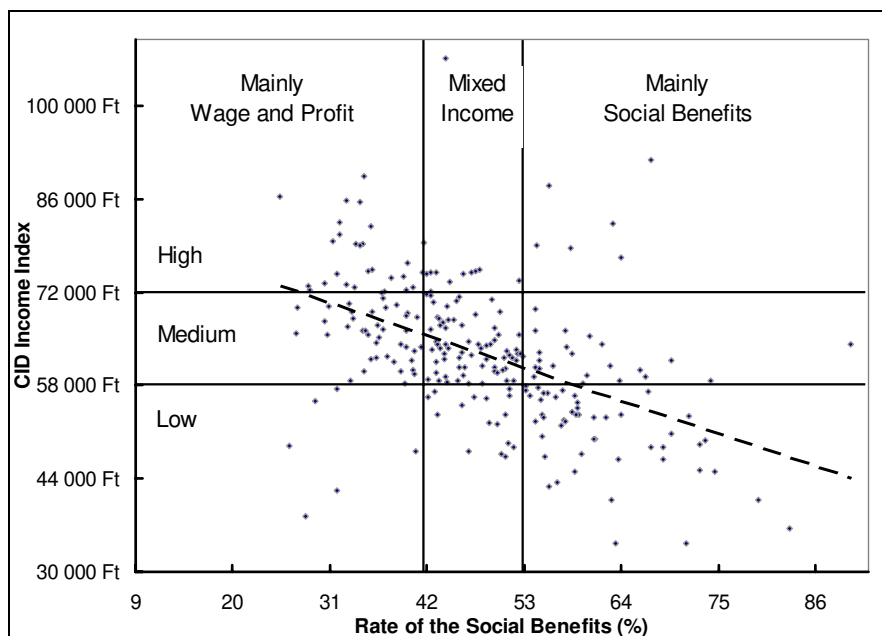


Table 1

The distribution of settlements and population in the income categories

	Mainly wage and profit	Mixed income	Mainly social benefits	Sum
<b>Settlements</b>				
High income	28 (11)	10 (1)	6 (1)	44 (13)
Medium income	40 (1)	69 (2)	22	131 (3)
Low income	6	16	48	70
Sum	74 (12)	95 (3)	76 (1)	245 (16)
<b>Population</b>				
High income	51.5	2.7	1.1	55.4
Medium income	14.4	17.8	3.0	35.1
Low income	0.4	2.4	6.7	9.5
Sum	66.4	22.9	10.8	100

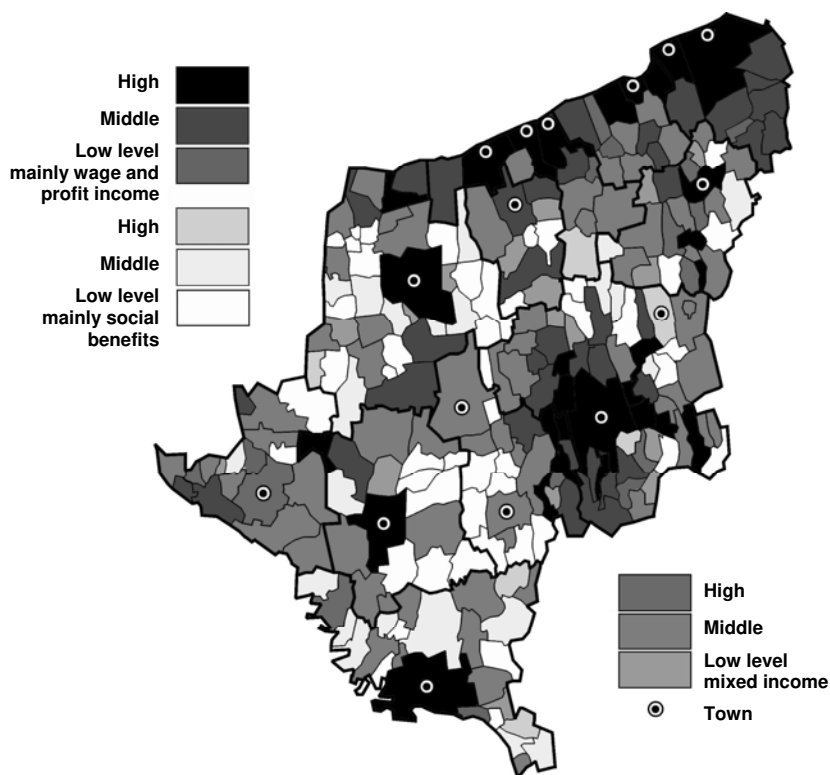
Analysing the population data shows a different picture. The 28 high-wage income settlements accommodate 50% of the population. All big towns belong here including some villages of the agglomeration of Kaposvár and settlement groups around Lake Balaton. These are the economic and population centres of the

county. 15% of the population lives in 69 of the medium level mixed income and 40 of the average wage income group. The latter includes three towns too. There is considerable population in the low-income group, while the other category comprises less than 3%.

The income configuration of the county was displayed on a cartogram (*Figure 3*).

**Figure 3**

**The Income types of the settlements in Somogy County**



The “healthy” areas of the county are outlined in this figure, where people sustain mainly on wages and investment profits provided by a functional economy. Another area is the underdeveloped settlements where people fall back on the low social benefits. The Balaton coastal zone with towns like Siófok as the dynamic front booster of the region, or the county seat itself together with its suburbs are in the high or further in the medium-wage group.

The income levels draw the inner and outer ring of the agglomeration of the county seat. Marcali, Nagyatád, Barcs and Tab, traditional centres of the region as well as a few small settlements are also in the high-wage income group.

The mixed-income settlements, which form the biggest group after all, show a very scattered picture. High income ones are Csurgó, a small town on the west and

some municipalities such as the list-leading Patca. Middle level mixed-income settlements constitute two thirds of the total including two towns, Nagybjajom and Kadarkút, which are still considered villages even though they have been titled towns for a decade now. They are called „scantly-towns” by the settlement geographers in Hungary (Dóvényi, 2006).

Having high income with additional social benefits does not create a considerable group, but it is an interesting phenomenon. Igal, having become a town not too long ago, is a striking example, and understandably so. A lot of senior citizens settled here with sufficient pensions to support them. Sántos is in a similar position with a high proportion of senior citizens, high pensions as well as a small proportion of dependents under working age. In the case of other settlements that have managed to reach the lower middle class status, special circumstances have lead to their rise.

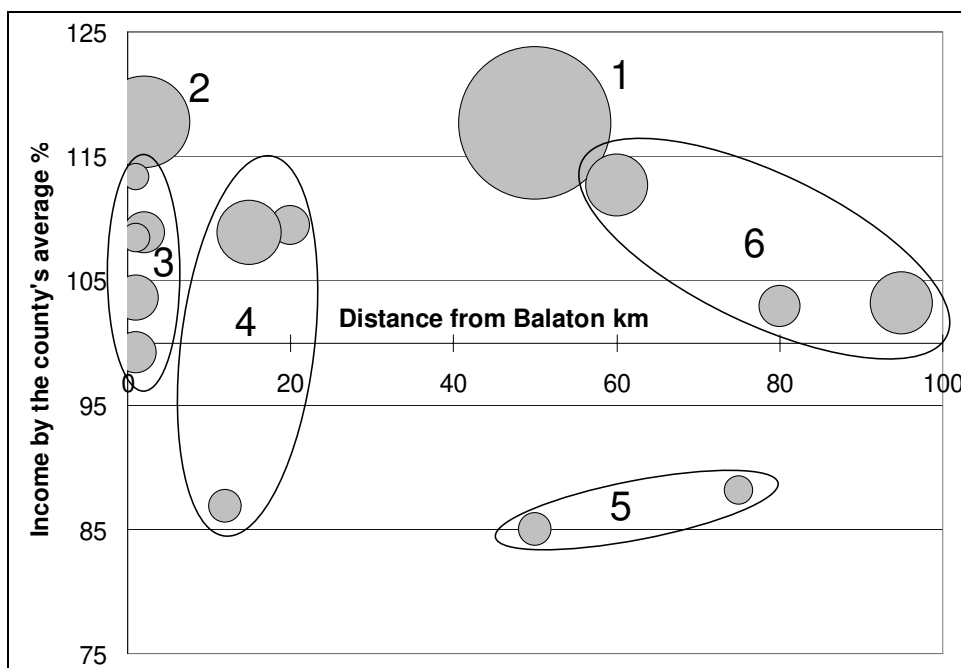
The settlements of the group living mainly on social benefits with medium and low standard of living formed some coherent blocks. The most considerable group of these consists of nearly 30 villages in the southern part of the county, in the lane between Barcs and Nagybjajom. The other block of 21 villages took shape around Marcali, on the western and eastern side of the micro-region. There is a small block on the northern edge of Kaposvár's micro-region, too. A few settlements of the group appear along the county's eastern border, too.

The settlements of the group living on social benefits with the lowest standard of living have the highest unemployment ratios, and the Romany ethnic group represents a considerable proportion in their population. The different aids mean the living source of the unqualified and unemployed. Between these the main component is considerable support given on the basis of the number of children, because these settlements have a youthful population structure. The dependents' high proportion contributes to the development of the low level average per capita incomes.

The blocks of these settlements inhabited by the Romanies in a considerable proportion can be interpreted as a uniform regional segregation. This creates social-ethnic ghettos where people live on a low standard of living from different aids and benefits after the children, similar to the villages in Cserehát and Ormánság (Baranyi *et al.*, 2005). There is a youthful social structure in them because of the Romanies' positive reproduction rate. The social system has been intensifying this by the effect of more children resulting in more money. The demographic transition is hampered, and several settlements exist with a growing population in the generally decreasing country. The attempts to intervene in the process were based on benefits and this has augmented the reproduction of the problem. Whole areas have given up the habit of working and normal economic morals and the communal worker status has become the perspective of the youth in some villages. The cartogram showed the advantage of towns, most of which have indices above the average. Urban inhabitants comprising 50% of the population own 57% of the income. They earn 11.5% more than the county per capita income. The 50% living in villages have 43% of the income, which is 12% below the average. Urban incomes have also been demonstrated on the basis of their distance from the Balaton axis (Figure 4).

Figure 4

Cities in the space of income and distance from Lake Balaton in Somogy



The bulbs are proportional with the population; 1: Kaposvár, town with county rank; 2: Siófok, dynamic development centre; 3: Other small towns of the Balaton axe; 4: Background towns of Balaton coastal zone; 5: New micro-towns in the inner periphery; 6: Old micro-towns on the outer periphery

The strong prominence of the two largest centres, Siófok and Kaposvár, is clear. Three traditional small towns (Nagyatád, Marcali, Tab) and three towns by Lake Balaton (Fonyód, Balatonföldvár and Zamárdi) are significantly above the average. Around the average we can find the incomes of Balatonboglár and Balatonlelle, the micro-centre Barcs on the southern border, as well as the “old school town” Csurgó. Three towns, however, are more than 10% below the county average, which would place them only in the middle of the ranking, even among villages. (The two towns in central Somogy have only recently become towns.)

Henceforth we are going to deal with micro-settlements having extreme values of income. The 245 settlements of Somogy were ranked according to their per capita income. At the lower end of the list the presence of settlement with a population below 1000 seemed natural. However, it is noteworthy that the first six were also tiny villages. Moreover, more than half (i.e. 23) of the 43 settlements that have incomes above the average also belong to this category, which means one tenth of all villages. Besides the eleven towns and nine larger villages they belong to “the rich” segment of settlements in Somogy County. They were used as the top tenth of villages in our comparative investigations, and they were contrasted with

the 23 “poor” settlements. Both groups have a population of approx. 10 thousand, which means they account for three percent of the county’s population respectively.

There is a twofold difference between the average income of the two extreme deciles no matter whether we consider the total income or wage and profit incomes. The latter shows a slightly higher standard deviation. Thus, one quarter of the income from the upper decile should be redistributed to “the poor” in order to level off disparities, so the value of the partial Robin Hood index calculated on the basis of the 46 settlements is 25. Compared to the county average the “rich” earn nearly nine percent better, while the poor earn 40% weaker. Based on the two databases the ratio of wage and profit and social incomes was also calculated. On the county level 37% is added to the net labour and capital income by the society. This value is 80% in the upper decile, and 150 % in the lower one. That is, both extremes are dependent on the benefits of the social network, in case of the upper one almost half of the income, while in case of the lower one much more than half of it comes from benefits.

In terms of the extreme values the villages in Somogy span the whole range of income in the Hungarian settlement network. Patca – the richest village in Somogy – is the 20<sup>th</sup> on the national list, while the tail-enders, Visnye and Kőökút, are the fifth and the sixth poorest settlements in Hungary. A threefold difference was found between them. The lower decile’s strongest settlement had two-thirds of the income of the upper decile’s weakest settlement, which, interpreted on the level of villages, means a 1.5 percentile value. The distribution of the richest and poorest villages in the county has not shown significant characteristics. One third of the rich villages surround Kaposvár, while one-fifth can be found between Kaposvár and Tab. The poor settlements are scattered in the central and south-eastern areas of the county, but there are some on the western border, too. It is interesting that extremes often appear side by side.

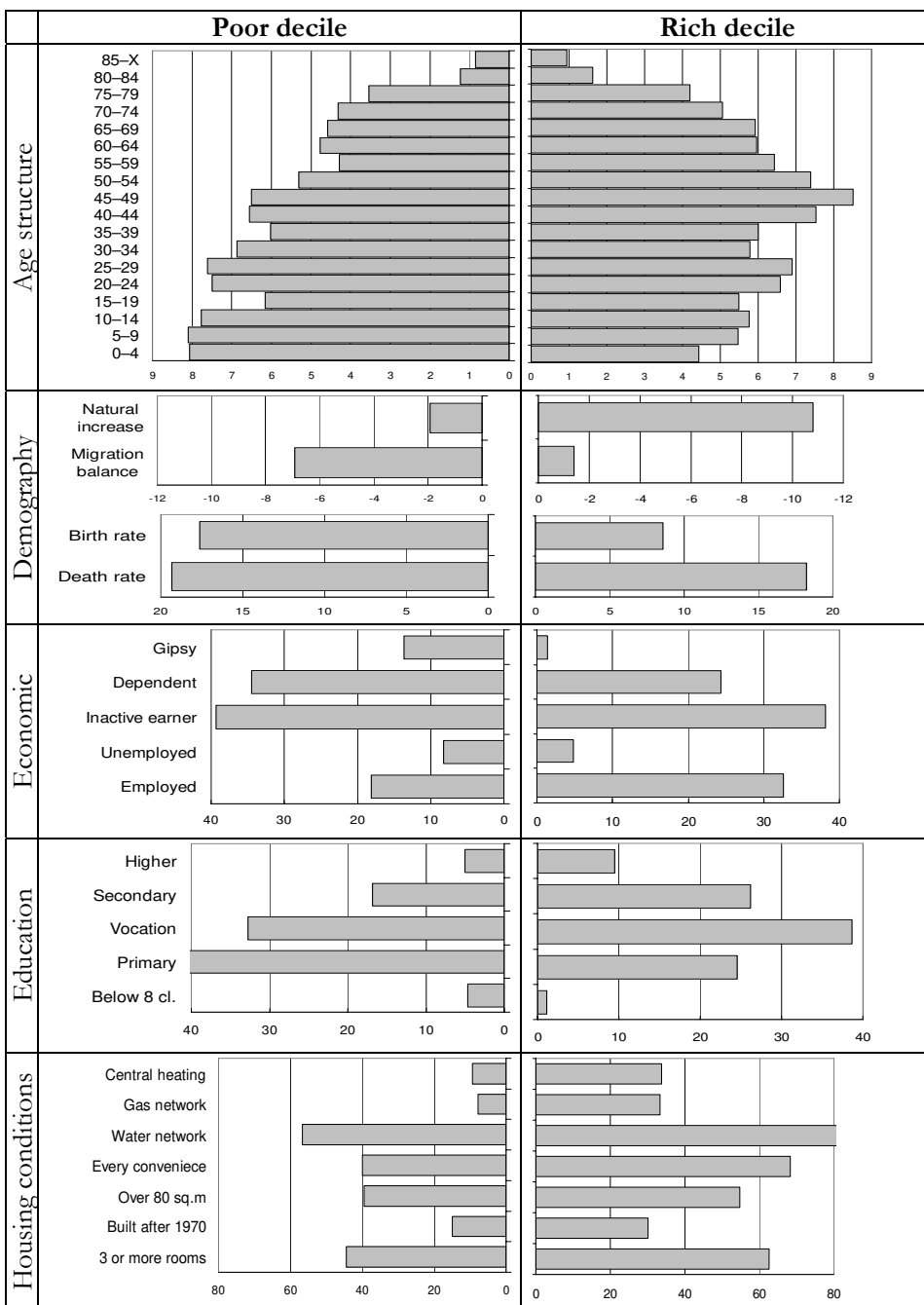
Regarding their transportation geographical position we can state that except for two rich settlements by Lake Balaton and two poor ones in north-eastern Somogy most of the two extremes are far from main transportation lines, having only a service road which makes them difficult to reach. On the basis of their socio-economic development (CSO), the bottom decile contains only undeveloped villages receiving higher regional development benefits, but the upper tenth has advanced and urbanised as well as underdeveloped villages.

Social characteristics of villages belonging to the extreme income deciles and showing significant differences are summarized in *Figure 5*. Difference in the age structure can be highlighted, where the lower decile shows the pyramid form of growing societies, while the top one represents the mushroom shape of decreasing population. This is due to the difference between demographic data.

While the upper decile is characterised by strong natural decrease and low external migration, in the lower one natural growth is only slightly negative but there is strong external migration. The gap in natural reproduction is primarily caused by higher birth rates in the lower decile, while part of the migration loss in villages of the upper decile in the vicinity of towns can be substituted by the processes of suburbanisation.

Figure 5

Some social features of the upper and lower income decile of villages



Source: Based on *Central Statistical Office data*



The indices of the lower income class regarding economic activity are much worse off. The high ratio of dependants coupled with a low employment rate is particularly conspicuous. The registered unemployment rate is also higher there. This may be related to the much higher presence of the Roma ethnic group, which – in our experience – is strongly underestimated by official statistics. From this we can conclude the process of ghettoization in villages with the lowest income levels.

It is confirmed by the much weaker values in the level of their educational attainment and in the indices of housing conditions. In poor villages the proportion of primary graduates is prominently high, in the rich ones the proportion of those with a profession is the highest, and those with higher qualifications are in a clearly visible majority. It suggests that apart from regional positions social structure also has a decisive role in regional income disparities.

## CONCLUSIONS

The examination of income levels and the income sources established significant regional disparity in Somogy County. The spatial pattern has shown an outstanding advantage of the county-seat and the settlements of the Budapest-Padania axis along Lake Balaton. Several small towns have emerged and taken relatively central position in the rural areas of the region too. They have a working economy, thus, their population is able to sustain on wage income and profits deriving from their investments. Settlements with the lowest incomes are scattered mainly in the middle and south-eastern part of the county. Their economy is going through a chronic structural crisis where social benefits have become the main income for the population. These are underdeveloped rural areas characterised by unqualified labour and strong Romany ethnicity. All this, together with the seemingly positive demographical trends, signal a deepening social and ethnical ghettoization.

It is noteworthy that several tiny villages are also present among towns on the upper income level. Naturally the lowest incomes also represent themselves in these tiny villages, scattered all over the county map with the extremes side by side. This shows that besides regional positions, social structure is also a determining factor to create regional income differences. The extreme deciles of villages have shown significant differences in their social indices, which also prove the effect of social structure on income disparities. Its prominent elements are the different age structure, economic activity and the level of educational attainment, which can be enhanced by the processes of suburbanisation in villages in the proximity of towns. We can conclude that it is the conservation of social extremes which is taking place which may well result in the poor villages shifting completely to the periphery. The levelling effect of social benefits is not more than temporary help, what is more, it will only reproduce the problem with a negative chain effect, adding fuel to the fire. Long-term solution would have to be specific development of the area. Instead of giving fish to the hungry, we should rather teach them how to catch fish.

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## FARMERS' APPROACHES AND OPINIONS ON KIWI FRUIT AS AN ALTERNATIVE CROP TO HAZELNUT IN TURKEY: THE CASE OF ORDU PROVINCE

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### ABSTRACT

*Turkey is the most important hazelnut producer in the world. It accounts for 70% of the total world hazelnut production alone, despite decreases in recent years. Hazelnut production is spread across 33 provinces in Turkey, mostly in the Black Sea region. About 395 thousand farm families engage in hazelnut production in about 540 thousand ha.. Hazelnut production is the only source of livelihood for 61% of hazelnut producer families. In hazelnut production Turkey is followed by Italy, the USA, Iran, and China. However none except Italy is a serious competitor for Turkey. Ordu province is the most important production area in Turkey, with a 30% share in total hazelnut production. In Turkey, hazelnut production has been supported since 1962. Nevertheless, governments have taken some political measures to prevent excess production since 1989. In order to balance the supply and demand, establishment of new hazelnut plantations and rehabilitation of old ones have been banned with the Code 2844 issued in 1983. Moreover, farmers have been supported for alternative crops in plain areas since 2003. Kiwi fruit is an alternative crop in the Black Sea region, which offers favorable conditions for its cultivation. However, farmers' opinions and views on kiwi production are of importance regarding the planning of hazelnut production in this region. In this study, hazelnut producers' opinions and approaches to kiwi fruit production as an alternative were investigated in order to guide future support policies.*

Keywords: Kiwi, Production Cost, Behavior of Farmers, Binary Logit

### INTRODUCTION

Turkey is the most important hazelnut producing country in the world. In recent years the production of hazelnut in Turkey has declined to an extent but it still produces 70% of the World total production. Hazelnut is grown in 33 Provinces although the production is concentrated in the Provinces on the Black Sea Region. Approximately 395 thousand families are engaged in hazelnut production on 540 thousand hectares of land. This corresponds to 2 million population. Hazelnut is the only source of income for the 61% of the farm families in Trabzon, Giresun and Rize Provinces. Italy, Spain, USA, Iran and People Republic of China are also major hazelnut producing Countries. On the other hand France, Greece and Russia produce hazelnut to a lesser extent. Italy is considered a major competitor of Turkey in hazelnut export. Rize Province is the most important area for hazelnut production which constitutes 30% of the total production. Akçakoca, Giresun and Trabzon areas

follow Rize in that regard. Hazelnut production is one of the most important agricultural activities and sources of income for most families in the Black Sea Region. Hazelnut production has been being supported since 1962. But the production has been increasing more than the market can absorb. Since 1989, the Governments have taken some measures to curb the production. But these measures have not been very effective. In 1883 a law number 2844 was enacted to ban the establishment of new hazelnut gardens. Later on another law was enacted stipulating that as of 2003, compensation be given to those who dismantle their hazelnut plots in the plain areas. Similarly, alternative plants were supported in plain areas where hazelnut gardens were dismantled. Kiwi production has been being promoted in these areas as an alternative product. The amount of consumption of kiwi fruit in Turkey is 60-70 thousand tons whereas the production is only 12 thousand tons. This shows that there is no marketing problem for kiwi fruit. Consumer's behaviors towards the alternative products need to be determined. In this study, the behaviors of the consumers towards alternative products will be examined.

In the study area, unemployment level is higher than the nation's average, the only source of income is hazelnut production and there is a big need for employment opportunities for young people. All these factors call for a substantial increase in the income of small and medium size hazelnut farms. In this connection kiwi fruit has been being promoted as an alternative plant in Rize Province.

## **MATERIAL AND METHOD**

The material for the study was mainly obtained from questionnaires conducted within the Central District of Rize Province. On the other hand some secondary data have been taken from the documents of the Provincial Directorate of Agriculture and published material on the subject.

### **Method**

#### *Data Collection*

Cross Section Method was used in the parts covering the farm enterprises (*Aytađ*, 1985). The study covers the 2008-2009 production period. Personal Interview method was used to obtain data by questionnaires. The questionnaires were prepared and ratio sampling method was used to determine the sample size for the questionnaires (*Çiçek and Erkan*, 1996).

#### *Data Analysis*

Working period for labor has been determined as 8 hours per day. The questionnaires were filled out by the researcher in person during the interview. The questionnaires were designed to determine the cost of kiwi fruit as the alternative crop to hazelnut. The objective of this study is to determine the need for labor, input usage, profitability, cost and benefit, net and gross profit in the farms where alternative kiwi fruit is produced. This study will produce a reference document for those authorities who are involved in decision making positions.

LOGIT analysis with multiple variables was used to determine the factors that affect the decision of the farmers regarding their desire to receive or not to receive support for alternative crop in Rize Province Central District. LOGIT and PROBIT models are used in analysis in which dependent variables have dummy values. In these models intermittent variables within probability distribution become continuous (Greene, 1997). In the study, willingness to receive support or not which is a continuous variable was turned into an ordered variable.

The coefficients in LOGIT model indicate the level of probability to accept an event or not.

The general functional form of the logistic functions (LOGIT) is as follows (Gujarati, 1992);

$$F_i(\beta X_i) = \frac{\exp(\beta x_i + \epsilon_i)}{1 + \exp(\beta x_i + \epsilon_i)} \quad (1)$$

F (βXi)= Index function (the level of receiving alternative crop J=0 for those who do not take and J=f1 for those who take)

β= Coefficient vector of explanatory variables.

Xi= Explanatory variables that represent the characteristics of the producers.

εi= error term

Probability of receiving alternative crop support: P<sub>i</sub> =

P<sub>i</sub> = Probability of dependent variable

e= Natural logarithm with 10 base value, approximately 2,7182.

Z<sub>i</sub> = βX<sub>i</sub> Z<sub>i</sub> = β<sub>1</sub> + β<sub>2</sub>X<sub>2</sub>

The probability of not receiving alternative crop support (1-P<sub>i</sub>) is as follows:

$$\frac{P_i}{1 - P_i} = e^{z_i} \quad (2)$$

The natural logarithm of the above formula which indicates the betting to receive the alternative crop support is as follows:

$$L_i = \ln \frac{P_i}{1 - P_i} = z_i = \beta_1 + \beta_2 X_2 \quad (3)$$

The logarithm of betting ratio L is linear not only according to X but also population coefficient. L is called Logit and the logit model stems from comes from above formula (Gujarati, 1992). The answers to the questions that shows the importance that the consumers attach to the characteristics of the products has been received by lickert scale of 5. Explanatory variables need to be summarized when their number is too high to mention. The summary was done by factor analysis and these factors were used in LOGIT analysis. The factors were derived from the observed variables. They can be estimated as the linear component of observed variables:

$$F_j = \sum_{i=1}^p [W_{ji}X_1 + W_jX_2 + W_{jp}X_p] \quad (4)$$

W<sub>i</sub>: Factor score coefficient

P: number of variables (Norusis, 1988)

## RESULTS AND DISCUSSION

Kiwi is a perennial crop. In the questionnaires, it has been determined that the establishment period is 3 years and economical life of the crop is 20 years.

The need for labor and machine as hours has been shown in *Table 1*. The labor cost represents the daily wages in the area. Machine draft cost also was calculated in accordance with the unit machine cost in the area (*Table 2*).

**Table 1**

### Seasonal labor requirement for kiwi production (hour/decar)

		Establishment Period	Production Period
<b>Cultivation and Planting</b>	Labor	30.05	-
	Machine	1.45	-
<b>Care Taking</b>	Labor	110.50	76.02
	Machine	-	5.60
<b>Harvesting and Transportation</b>	Labor	-	25.08
	Machine	-	-
<b>Total</b>	Labor	140.55	101.10
	Machine	1.45	5.60

**Table 2**

### Material used in Production

Inputs	Quantity	Unit Cost	Total	
			TL	(%)
Seedling (number)	60	5	300.00	19.12
Fertilizer (kg)				
Farm Manure	1500	0.20	30.00	1.91
Chemical Fertilizer				
Ammonium Sulfate	3.01	1.40	4.21	0.27
DAP	1.55	2.70	4.19	0.26
Potassium Sulfate	1.50	3.00	4.50	0.29
Pole (number)	55	15.00	825.00	52.57
String (kg)	45	0.70	31.50	2.01
Cement (sack)	5	6.00	30.00	1.91
Pebble (m <sup>3</sup> )	2	30.00	60.00	3.82
Irrigation			280.00	17.84
Total			1569.40	100.00

### Kiwi Cost

*Production Procedures:* The time for production has been determined for different actions during the establishment period (ploughing, repeat ploughing, leveling, determining of planting spots, pit opening, planting and fertilizing) and during the maintenance period (fertilizing, pruning, cutting seedlings, tying branches to strings, hoeing, irrigation, renewing the wilted seedlings, pole planting, setting up carrying strings etc.). Maintenance cost (for pruning, cutting tips, row cleaning, branch cleaning) was calculated to be 690.50 TL and harvesting and transportation cost (for harvesting, classification, loading and transportation) was 160.24 TL (Table 3).

**Table 3**

#### Production cost of Kiwi crop

Actions	Total(TL)
Establishment cost /per year	150.60
1. maintenance	690.50
2. harvest and transport	160.24
Total	1001.34
3. Capital Interest (0.14)	140.19
<b>Total Variable Cost (<math>\Sigma</math>VC)</b>	<b>1141.53</b>
4. Rent	86.50
5. General Operational Cost (0.03)	34.25
<b>Total Fixed Cost (<math>\Sigma</math>FC)</b>	<b>120.25</b>
<b>General Total (Production Cost) (<math>\Sigma</math>VC + FC)</b>	<b>1261.78</b>
Yield (kg/da)	1651.00
Production Cost (TL/da)	1261.78
Cost of 1 kg. Kiwi (TL/kg)	0.76
Selling Price (TL/kg)	1.50
Gross Value of Crop (Yield x Price)	2476.50
<b>Net Profit (TL/da)</b>	<b>1214.72</b>
<b>Gross Profit (TL/da)</b>	<b>1334.97</b>

Revolving fund interest has been calculated to be 140.19 TL taking into consideration the interest rate of the Agricultural Bank (14%) for crop production. General Operational Cost is related to the management of the farm, social services and the common cost involving all activities (Kral *et al.*, 1999). 3% of the total cost has been taken as the general operational cost for kiwi (Çiçek *et al.*, 1999; Kızıloğlu 2010). This figure was calculated to be 34.25 TL. Variable cost was 1141.53 TL and Fixed Cost was 120.25 TL/da. The cost for 1 kg kiwi is 0.76 TL. This was calculated by dividing the total cost by the yield in a decare of land.

The capital productivity has been calculated to be 1.65. The labor productivity was 13.49.

According to the result of the analysis those who take alternative crop support are positively affected by age level of support and low level of income from

hazelnut. This indicates that those who take support in relation to those who do not take support are affected positively by age by 19.2 times at  $p=0.001$  level by attractive support 7.20 times at  $p=0.001$  level and by low level of income from hazel nut 46.37 times at  $p=0.084$  level. On the other hand those who take support are affected negatively by income 0.25 times at  $p=0.049$  level and by proper climate 0.085 times at  $p=0.006$  level (Table 4).

**Table 4**

**Binary LOGIT analysis results of the factors affecting the willingness to take support**

	<b>B</b>	<b>Sig.</b>	<b>Exp(B)</b>
<b>Age</b> (0-55=1, 56-+=2)	<b>2.966</b>	<b>.001*</b>	<b>19.421</b>
Income of the head of Family (1: Illiterate 2: literate. 3: elementary. 4: secondary. 5: high school. 6: university)	-.489	.167	.613
<b>Income:</b> (1:250 2:251-500 3: 501-1000 4: 1001- 5000 5: 5001-10000 6:10001+)	<b>-1.395</b>	<b>.049**</b>	<b>.248</b>
Whether there is a Market Demand or not (Yes=1. No=0)	-.809	.328	.445
<b>Whether the supports are attractive or not</b> (Yes=1. No=0)	<b>1.975</b>	<b>.001*</b>	<b>7.204</b>
Whether the market price is proper or not (Yes=1. No=0)	25.405	.999	1.079E11
<b>Whether the income from hazelnut is</b> <b>satisfactory or not</b> (Yes=1. No=0)	<b>3.837</b>	<b>.084**</b>	<b>46.372</b>
<b>Whether the climate is good or not</b> (Yes=1. No=0)	<b>-2.463</b>	<b>.006**</b>	<b>.085</b>

*Model Summary: -2 Log likelihood=65.892a; Hosmer and Lemeshow Test: Chi-square=13.010. Sig = .072; \*. 0.05; \*\*. 0.10; When  $P < 0.10$  in the model the confidence level is 90%.*

## CONCLUSION

The highest demand for labor in the production of kiwi as an alternative crop is in the period of maintenance period in Rize where kiwi is produced the most.

Pole seedling and irrigation costs are at the top of the list of cost in that order. It has been calculated that the production cost for kiwi is 1261.78 TL/decare and the cost per kilo is 0.76. Net profit per decare is 1214.72 TL and gross profit is 1334.97 TL.

On the web page of the Ministry of Agriculture it is indicated that kiwi production is two and a half times as profitable as hazelnut.

According to the results, those who receive support are affected positively by age attractive supports and low level of income from hazelnut and negatively by income and proper climate.



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## COMPARISON OF TURKISH AND WORLD AGRICULTURAL PRODUCER ORGANIZATIONS

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### **ABSTRACT**

*Agricultural development is the core of the social and economic development that developed countries have achieved in today's world. Agriculture has played an important role in industrialization of countries, and much of the credit for this could be given to producer organizations. In countries with small scale farm enterprises, modern and economic agricultural production is possible only with producer organizations. In this study, agricultural producer organizations were compared according to their organizational structures with an emphasis on the necessity of producer organizations for agricultural development.*

Keywords: agricultural development, EU countries, effective, Turkey

### **INTRODUCTION**

In developed and developing countries, various farmers' organizations are used in the solutions of the fundamental problems of agriculture that have lasted for many years in the accomplishment of agricultural development and in the production and implementation of agricultural policies (Turan, 2001). Since resources are limited in agriculture, it has a high risk factor related to the natural conditions; it has special preservation conditions of products and because of the price fluctuations caused by supply-demand mismatch, the necessity of organizations is gaining importance (Kiraci and Ozdemir, 2005).

The priority is to increase the competitiveness of EU countries which are developed in agriculture and to have strong organizational structure (Yılmaz, 2008). To have an appropriate structure of agricultural organization is the case for every country, as a member of EU. Therefore, there is not a single example of organization model to be applied to every country. Within the EU countries, there are some types of organizations according to their own conditions and some upgraded institutes formed with the participation of these supply various functions.

### **DISCUSSION**

#### **Agricultural Organizations in Turkey**

Since the most agricultural holdings are not big enough in Turkey and they couldn't supply capital formation, the investments couldn't be made; agricultural input

couldn't be raised and modern agriculture technologies couldn't be applied in businesses. For the farmers living in rural areas and taking part in agricultural production to use the production resources more effectively, to supply the agricultural productions under appropriate conditions, to apply the modern agriculture techniques, to market their products after evaluating in a good way and to benefit from the public services more effectively is just possible by the help of organizations.

In fact, organizational powers, like organized farmers are the way to create agricultural policies, to determine the conditions of application and by the help of this to influence the political mechanisms and to be effective in the market, to actualize the rural development by increasing productivity due to the modern production techniques (*Inan et al, 2000*).

In Turkey, the majority of the agricultural enterprises (65-67%) have between 10-50 acres of land. In addition, landless families have an important role in agriculture

Purposes of producers' organizations in agriculture:

- to protect the interests of the producers,
- to monitor innovation and advances and supply the information for all kinds of exchange,
- to create political pressure,
- to fasten the process of democratic decision making,
- to supply the necessary input and technologies to increase the quality and productivity,
- to increase the effectiveness of rural areas in economy,
- to increase the producers' income and standard of living.

When we order the organizations taking part in organizations of the rural areas according to their task of organization, 3 organizations are important (*Anonym, 2000*):

1. *Public Organizations offering agricultural service*: Some of these organizations are Ministry of Agriculture and Rural Affairs, Ministry of Industry and Trade, State Planning Agency, Ministry of Forestry, Ministry of Environment, Ministry of Finance.
2. *Effective pressure groups*: There are 3 different pressure groups to create effective methodologies in agriculture in different areas like vocational, educational research and solidarity:
  - a. Vocational and social purpose organizations: As determination of agricultural policies and agricultural technical service class, education, research and vocational organizations there are some kinds of organizations like Turkish Agricultural Eng. Union, TCAE Chamber of Agricultural Engineers, Turkish Veterinary Medical Association, Chamber of Veterinarians, Chamber of Food Engineers, Agriculturists Association, Agriculturists Organization, Association of Veterinary Technicians.
  - b. Producers' Organization: As a professional organization in agriculture, there is the Union of Chambers of Agriculture of Turkey.

- c. Voluntary organizations: It consists of foundations and associations related to the producers in agriculture.
3. *Organizations with Economic Purpose:* Agriculture corporative where producers really want to become organized, producer associations, exporter associations and firms are taken up in this group. Several countries in the economic organization of agriculture have developed a multi-model. One of the most successful of these models is cooperative.

#### *Agricultural Chambers*

Agriculture Chambers are professional organization and its functions are developing agriculture sector in the advantage of agriculture, providing professional services, helping the government to become fact agricultural plans, arrange the relations among the farmers and providing the reliance between public and the farmers, for these reasons it was established 1957 with 6964 law and has got judicial position. Agricultural Chambers were organized at the country level and the upper units have been set up.

#### *Farmers Union and the Associations*

Associations have been established according to the law of non-governmental organizations. They have been established in the base of either product, region or professional names. The most important ones are Manisa Viniculture Association, Aegean Region Milk Animal and Milk Producers Association, Aegean Farmers Assoc., Adana Farmers Associations, Banana Producers Association.

#### *Agricultural Producer Unions*

Purpose: to plan agricultural production according to demand, to improve the quality, sell the products according to standards, take precautions to increase marketing power on the national and international level, encourage the organizations to establish unions . Agricultural Producer Unions' rules relating to establishment, functions, methods, process are organized in respect of agricultural producers' law.

#### *Agricultural Sales Cooperatives and Unions*

Cooperatives and Associations work about putting other producers' also its partners' products to use, meet the requests and protect the economic self interests. There are 16 associations and 324 major agricultural sales cooperatives in Turkey. These are; Taris, Trakya Assoc., Marmara Assoc., Black sea Assoc ,Rose Assoc, Ant Assoc., Fisko Assoc., Zinc Assoc, Olive, Cotton, Grape, etc.. In order to establish an Agricultural Sales Cooperatives at least three Union of Agricultural Cooperative must come together.

#### *Village Development and Other Agricultural Corporations Central Association*

It is a central organization of Village Development and Other Agriculture Corporation. It works in different areas belong to agriculture. (Animal Breeding-Milk Production and its process , green house, carpet production, olive and olive oil process, honey, rice production and its process, floriculture, sapling, tomato paste,

jam, canned food, etc.) Related to Central Association; there are 25 associations 1 central branch, 2.700 unit corporates. It protects partners' self-interests against Offices inside and outside of Turkey.

#### *Agriculture Credit Corporate*

Agriculture Credit Corporate gives short term and middle term credits to its partners. Besides Agricultural Credit Corporate have opened middle term equipment credit recently. By the side of material credits Agriculture Credit Corporate provides as in kind credits manure, food, seed, seedling, agriculture medicine, agriculture equipment and consumption things completely or retail. Among these the most important activity is providing chemical manure.

#### *Agricultural Development Corporates*

Agricultural Development Cooperatives is a multi-purpose cooperatives, has been operating in various areas. The main reason for the establishment of the multi-purpose cooperatives is the agriculture of our country dominated by a structure in poly-culture. Farmers' livelihoods are provided by being in wide variety of agricultural activities. Therefore, the input needs of farmers become different, the evaluation or marketing of these products requires different activities.

#### *European Union (EU) Countries*

Today, the countries where the agricultural organization is the most common, are the European Union (EU) countries. In the European Union agricultural organizations have an important place for formulating policies for the agricultural sector and the implementation of these policies, 50-60% in agro-based industry are carried out through these organizations (Kızıloğlu, 2009).

The organization of farmers can be handled in Grouped in various ways in the EU. Based on scientific topics in general aims of these organizations, 2 different way of organizing economic and professional appears (Eraktan, 2004).

1. *Economic organization*: It includes cooperatives, associations, companies and even some trade unions which aim to become more powerful to come to the field of production and marketing.
2. *Professional organization*: It consists of operator sector organizations which inform farmers about production and market conditions and aims at protection of interests including chambers of agriculture and farmers' associations. These are organizations which aims in general, gives information about market conditions from producers to consumers at every stage until it reaches the manufacturer's and the protection of interests.

These two different ways of organizing are able to go the top structures, national and EU level within the existing legal rules among themselves by performing a number of mergers.

Producer organizations which have Recognition of the criteria is defined as Associations Producer by met among themselves and if they can acquire the right to recognition in accordance with EU criteria.

As profession associations; agriculture societies, farmer corporations, inter branch organizations and operator's organizations do not do any commercial activities too. Also these associations have associations in the national level.

Upper associations that are organized in regional level form national societies. Associations in national level become organized in EU level and they have economic goals like General Committee for Agricultural Cooperation in the European Community,

In the EU constitution Committee of Professional Agricultural Organizations represent farmers with professional dimension.

Except COPA and COGECA, organizations that compete each other do not make any effort protect their commercial self-interests. That defends mass of farmers that have different problems without sale worry (*Anonym*, 2006).

### **International Agricultural Associations**

#### *Via Campesina*

Via Campesina consists of farmers organizations, small and middle scale farmers, people who work for agriculture, is an international movement and it is in the aim of meeting basic demands in the agriculture sector. Many countries such as from Africa to North America, Mexico, Canada, America, from South America, Southeast and East Asia to South Asia, Europe including Turkey are its member.

COGECA is General Committee for Agricultural Cooperation in the European Community. COPA: Committee of Professional Agricultural Organizations has international upper associations. Agriculture Loan Corporations and Agriculture Societies Organizations from Turkey are member of COGECA (*Anonym*, 2011).

### **CONCLUSION**

In the world especially developed countries give priority to organizing to increase prosperity level in agriculture sector and effective of actions from production to marketing. In Turkey Organizations in agriculture are supported in pioneering of Agriculture Ministry. With this agricultural associations and producers corporations are important members of organizing in agriculture. On the other hand it can't be said that corporations and producer associations work effectively. One of the important reasons of this is impact of producers organizing and insufficient education and information level on its effectiveness.

Become organized in agriculture contribute to increasing information level on movement together and producers' activities, chasing reforms and developing joining in democracy. With this small family enterprises will provide production factors in suitable conditions and will sell their products in suitable prices. Corporations are very vital tools for being good position in market and in coming together as farmers like developed economies. Countries that have small enterprises like Turkey, farmers just can do agriculture with corporations in modern and economic scale.

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## CRITICAL ANALYSIS AND ASSESSMENT OF EU POLICY ON MULTIFUNCTIONAL LAND USE ACTIVITIES IN RURAL AREAS

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### **ABSTRACT**

*Rural areas are becoming increasingly differentiated and gradually losing their agricultural specificity. They now need to support the coexistence of two logical approaches to occupation of their space: one based on the supply of agricultural and forestry products, the other on the various demands from local residents and seasonal tourists. Under these conditions the roles of agriculture, forestry, and tourism industry are evolving; the focus is no longer simply on supplying market goods while limiting the impacts of this supply on negative external factors but now also on participating in land development and meeting the manifold expectations of society. The paper analyses EU policies related to multifunctional land use activities on the national and regional level. The policy framework within which multifunctionality of land use activities is realized is determined by three EU policies, namely the Cohesion Policy, Rural Development Policy, and Enlargement Policy. The paper focus on six cases: Bulgaria, Czech Republic, Croatia, Germany, France and UK. Three of the case study sites (in Czech Republic, Bulgaria and Croatia) were/are influenced by the financial instruments of the Enlargement policies (PHARE, SAPARD, ISPA, IPA). The impact of EU policies is assessed in three domains – economic, social and environment. The scope of impact of the major driving forces for multifunctional land use activities is assessed and analyzed.*

Keywords: Multifunctionality, EU policy, Rural Development

### **INTRODUCTION**

Rural areas are becoming increasingly differentiated and gradually losing their agricultural specificity. They now need to support the coexistence of two logical approaches to occupation of their space: one based on the supply of agricultural and forestry products, the other on the various demands from local residents and seasonal tourists. Under these conditions the role of agriculture, forestry and tourism industry



is evolving; the focus is no longer simply on supplying market goods while limiting the impacts of his supply on negative external factors but now also on participating in land development and meeting the multiple expectations of the society.

The concept of multifunctionality is discussed for the last two decades. The literature review reveals different view points and evolution of the concept. Multifunctionality is associated with agriculture and its capacity to produce food and fiber simultaneously with non-market goods (landscape, rural vitality, food safety etc.). Both are linked with land use and measure “the amount of commodity and non-commodity outputs jointly produced by a piece of land or an activity”.

Multifunctionality is intended to draw attention to the positive “goods” that agriculture can produce beyond the food and fiber that farmers sell in the marketplace. These goods can be defined quite broadly, but generally include rural community values such as a large number of independent, family farms, strong local economies that both rely on the economic output local farms and supply them with agricultural goods and services, rural employment, and the continued health of rural culture. Environmental goods usually mentioned include contributions to biological diversity, clean water and air, bioenergy, and improved soils. Other multifunctional products include regional or national food security, landscape values, food quality/food safety, and improvements in farm animal welfare.

Considering all these aspects and viewpoints the definition on multifunctionality for the paper purposes is: multifunctionality is defined as being the ability of piece of land/landscape to provide multiple benefits both to human and non-human systems. On the basis of this definition the potential impact of EU policies will be assessed on national and regional level.

The policy framework within which multifunctionality of land use activities is realized is determined by the three EU policies, namely Cohesion Policy, Rural Development Policy and Enlargement Policy. The paper focus on six cases, namely Bulgaria, Czech Republic, Croatia, Germany, France and UK. The survey is part of the research collaborative project “Prototypical Policy Impacts on Multifunctional Activities in rural municipalities (PRIMA)”, under EU 7th Framework Programme, contract no. 212345, <https://prima.cemagref.fr>. Three of the case study sites (in Czech Republic, Bulgaria and Croatia) were/are influenced by the financial instruments of the Enlargement policies (PHARE, SAPARD, ISPA, IPA). As a policy concept, multifunctionality fulfils three specific functions: economic, environment and social, and is a prerequisite and precondition for sustainable rural development. Therefore the impact of EU policies will be assessed in these three domains.

*The aim of the paper is critical analysis of the EU policies - Cohesion, Rural Development and Enlargement - and their assessment for the multifunctional land use activities in rural areas from economic, environment and social view point.*

The paper is organized as follows. Section one of the paper is Introduction. In Section 2 we present a review of the EU policies, namely Cohesion Policy, Rural Development Policy and Enlargement Policy. Section 3 gives a brief description of the methodology used. In Section 4 we analyze the potential policy impact in economic, social and environmental domains from land use and landscape multifunctionality on the basis of preliminary defined areas. Section 5 gives some conclusions.

## EU POLICIES

The major goal of EU policies (Cohesion, Rural Development and Enlargement) is sustainable economic development. Structural and Cohesion Funds are financing social, economic, environmental and territorial cohesion. They are related to the economic growth and increased employment, the improvement of infrastructures, and investment in research and development, social inclusion and human capital development.

*Cohesion policy (European Regional Development Fund, European Social Fund, and Cohesion Fund)*

EU Cohesion Policy aims to reduce the gap in the different regions' levels of development, in order to strengthen economic and social cohesion and decrease disparity levels across the EU. It has three objectives:

- Convergence through improving conditions for growth and employment, through increasing and improvement of the quality of investment in physical and human capital, development of innovation and of the knowledge society, adaptability to economic and social changes, the protection and improvement of the environment, and administrative efficiency. This objective is financed by the ERDF, the ESF and the Cohesion Fund. It represents 81.5% of the total resources allocated.
- Regional Competitiveness and Employment objective aims strengthening regions' competitiveness and attractiveness as well as employment by anticipating economic and social changes, including those linked to the opening of trade, through the increasing and improvement of the quality of investment in human capital, innovation and the promotion of the knowledge society, entrepreneurship, the protection and improvement of the environment, and the improvement of accessibility, adaptability of workers and businesses as well as the development of inclusive job markets. It is financed by the ERDF and the ESF and accounts for 16% of the total allocated resources.
- European territorial cooperation objective "shall be aimed at strengthening cross-border cooperation through joint local and regional initiatives, strengthening transnational cooperation by means of actions conducive to integrated territorial development linked to the Community priorities, and strengthening interregional cooperation and exchange of experience at the appropriate territorial level." This objective is financed by the ERDF and represents 2.5% of the total allocated resources. Measures under the Territorial Cooperation objective can receive co-financing of up to 75% of public expenditure.

Community financial instruments for achieving these objectives are European Regional Development Fund (ERDF), European Social Fund (ESF), and Cohesion Fund (CF). The cohesion policy has been allocated a budget of EUR 347 billion for the period 2007–13 (in current prices), which is more than a third of the whole of the European budget.

The ERDF is financing: productive investment to create and safeguard sustainable jobs; investment in infrastructure; the development of endogenous

potential by measures which encourage and support local development and employment initiatives and the activities of small and medium-sized enterprises; in order to overcome regional imbalances in the EU.

The ESF should strengthen economic and social cohesion by improving the adaptability of workers and enterprises, enhancing human capital and access to employment and participation in the labour market, reinforcing the social inclusion of disadvantaged people, combating discrimination, encouraging economically inactive persons to enter the labour market and promoting partnerships for reform.

The CF promotes trans-European transport networks, protection of the environment sustainable development, renewable energy, etc. for the purposes of strengthening the EU economic and social cohesion.

### **Enlargement Policy (Instrument for Pre-Accession Assistance (IPA))**

The single legal framework - Instrument for Pre-Accession Assistance (IPA) - regulates the pre-accession assistances in the period 2007-2013. It carries on the pre-accession policies purpose to provide assistance to countries which are candidates and potential candidates for membership to the EU. Also, IPA has been adapted to reflect the different objectives and progress of each beneficiary, and to provide a support according to their needs and evolution (actual political, economic and administrative situation).

The assistance is accomplished by the following components:

- Transition Assistance and Institution Building with associated investments, as well as transition and stabilization measures.
- Cross-Border Cooperation supports cooperation at borders between candidate/potential candidate countries and between them and the EU countries.
- Regional Development finances investments and associated technical assistance in areas such as transport, environment and economic development.
- Human Resources Development supports strengthening human capital and combating exclusion (similar to the European Social Fund);
- Rural Development designed as predecessor of post-accession Rural Development programmes financing measures, similar in nature to these programmes.

The implementation of assistance under IPA is ensured through annual or multi-annual programmes that reflect the priorities of the Stabilization and Association Process, as well as the strategic priorities of the pre-accession process.

Eligible beneficiaries under IPA are any natural or legal person based in the eligible countries – Candidate country (Croatia, Turkey, The former Yugoslav Republic of Macedonia) and Potential candidate country (Albania, Bosnia, Montenegro, Serbia, Kosovo).

### **Rural Development Policy (European Agricultural Fund for Rural Development)**

Agriculture continues to be the largest user of rural land, as well as a key determinant of the quality of the countryside and the environment. Therefore the two pillars of the Common Agricultural Policy (CAP) moderate economic, social and environmental problems of Europe's rural areas, namely Pillar 1: Market

support measures and direct subsidies to EU producers and Pillar 2: Rural development policy.

The two pillars were introduced after fundamental CAP reform has been done since 1992. The aim of all these changes is moving away from a price policy and production support to a more comprehensive policy of farmer income aid. The reformed CAP should not only improve the competitiveness of the agricultural sector, guarantee food safety and quality and stabilize EU farmer incomes, but also provide environmental benefits, enhance the rural landscape and support the competitiveness of rural areas across the Union. The driving force behind the June 2003 Reform remain that of providing a clear, long-term perspective for the future development of the CAP by: enhancing the competitiveness of EU agriculture; promoting a more market-oriented, sustainable agriculture; and providing a better balance of support through more rural development. The next important feature of the last CAP reform in this regard is the increase in the financial resources for the CAP's second pillar.

The main objectives of the rural development policy are established in Regulation (EC) No 1698/2005 and cover three key areas: improving the competitiveness of the agricultural and forestry sector; improving the environment and the countryside; improving the quality of life in rural areas and encouraging diversification of the rural economy. An additional requirement is that part of the funds should be used for projects based on experience with the Leader Community Initiatives. The "LEADER approach" to rural development involves highly individual projects designed and executed by local partnerships to address specific local problems.

Every Member State is obliged to set out a Rural Development Programme for the period 2007 to 2013, outlining which specifics should be addressed, which measures will be implemented and the amount of funding that will be spent on them.

The rural development strategies and programmes are built around four axes in conformity with the key areas mentioned before, namely:

*Axis 1 - improving the competitiveness of the agricultural and forestry sector* - covers a range of measures dealing with human and physical capital in the agriculture, food and forestry sectors (promoting knowledge transfer and innovation) and quality production. The first priority is intended to improve the competitiveness of the agricultural and forestry sector through further development of high-quality and value-added products that meet the diverse and growing demand of Europe's consumers and world markets. The resources devoted to axis 1 should contribute to a strong and dynamic European agrifood sector by focusing on the priorities of knowledge transfer, modernization, innovation and quality in the food chain, and on priority sectors for investment in physical and human capital. In order to meet these priorities, Member States have to focus the support on key actions depending on the national or regional objectives and that could include activities for: restructuring and modernization of the agriculture sector, improving integration in the agrifood chain, facilitating innovation and access to research and development (R&D), encouraging the take-up and diffusion of information and communications technologies (ICT), fostering dynamic entrepreneurship, developing new outlets for agricultural and forestry products, improving the environmental performance of farms and forestry.

*Axis 2 - improving the environment and the countryside* - provides measures to protect and enhance natural resources, as well as preserving high-nature value of farming and forestry systems and cultural landscapes in Europe's rural areas. In order to meet these priorities, Member States should focus their support on key actions like: promoting environmental services and animal-friendly farming practices, preserving the farmed landscape and forests, combating climate change, consolidating the contribution of organic farming, encouraging environmental/economic win-win initiatives, promoting territorial balance.

*Axis 3 - the quality of life in rural areas and diversification of the rural economy* - helps to develop local infrastructure and human capital in rural areas to improve the conditions for growth and job creation in all sectors and the diversification of economic activities. The support is focused on: raising economic activity and employment rates in the rural economy, labor market development, encouraging the entry of women into the labor market, integrated initiatives combining diversification, business creation, investment in cultural heritage, renovation of infrastructure and local services, upgrading local infrastructure. Coordination of these measures with the considerable support that will be available from the Structural Funds, will contribute substantially to the diversification and development of rural economy, developing micro-business build on traditional skills or introduce new competencies, training young people in skills needed for the diversification of the local economy through rural tourism, provision of environmental services, reinforcement of traditional rural activities and production of local brands quality products, encouraging the development of skills for ICT use to overcome the disadvantages of location, developing the provision and innovative use of renewable energy sources, which would contribute to creation of new options for agricultural and forestry products, development of rural and agri-tourism build on cultural and natural heritage.

*Axis 4 – Leader* - introduces possibilities for innovative governance through locally based, bottom-up approaches to rural development. It plays an important role in the horizontal priority of improving governance and mobilizing the endogenous development potential of rural areas. The support is on: building local partnership capacity, animation and promoting skills for mobilizing local potential, promoting private-public partnership and cooperation in rural development actions and bringing the private and public sectors together, improving local governance.

The major documents at national level that are obligatory for the implementation of Rural Development Policy are: National Strategic Plan for Rural Development, Rural Development programme and Ordinances for application of the rural development measures. On the basis of analysis of the current situation in the country the national strategic objectives, national goals and actions should be determined in consistence with the EU strategic objectives under the four axes. The coordination with the other EU policies in respect to the measures, activities, projects, areas and beneficiaries should be confirmed. For the purpose of reporting and evaluation of the results a system of indicators should be precisely incorporated in the plan.

Generally the potential beneficiaries could be farmers, processors, other businesses dealing with construction, social activities, other economic activities in respect to the local need determined by the local regional plans for development

and in general the society living in these regions as well as the environment and the whole society.

Focusing on the rural development the CAP's reform introduces a financial instrument: the European Agricultural Fund for Rural Development (EAFRD). The instrument, established by Regulation (EC) 1290/2005, aims at strengthening the EU's rural development policy and simplifying its implementation. In particular, it improves the management and controls of the rural development policy for the period 2007-2013. The main objectives of EAFRD are in consistency with the four axes of RDP.

EAFRD provides financial assistance to initiatives in rural areas. It directly supports actions in the area of multifunctional land and landscape use.

For the analysis completeness has to be mentioned three other EU policies influencing multifunctional land use activities in rural areas, namely:

### **Environmental policies**

It is realized through the Sixth Environment Action Programme of the European Community 2002-2012 including the following thematic strategies in the fields of: Air, Waste prevention and recycling, Marine Environment, Soil, Pesticides, Natural resources and Urban Environment. The most important environmental policies related to the land use in rural areas are: safeguarding the complex of biodiversity, the soil protection, the sustainable use of natural resources, the catchment management and flood prevention and the cultural heritage conservation.

### **Forest policy**

Forests play important role for economic and social life in rural municipalities. They contribute to the quality of life. Forests are important for reaching environmental objectives, particularly with regard to preserving biodiversity, mitigating climate change, preserving water resources, combating erosion and desertification. Forests and development forest-based industries are important source of jobs and economic prosperity in rural areas. Forest policy is introduced by Forest Action Plan (FAP) developed in 2006. The overall objective of the EU Forest Action Plan is to support and enhance sustainable forest management and the multifunctional role of forests.

### **Tourism policy**

Tourism plays an important role in the development of the vast majority of European regions. Infrastructure created for tourism purposes contributes to local development, and jobs are created or maintained even in areas in industrial or rural decline, or undergoing urban regeneration. Sustainable tourism plays a major role in the preservation and enhancement of the cultural and natural heritage in an ever expanding number of areas, ranging from arts to local gastronomy, crafts or the preservation of biodiversity. This in turn impacts in a positive way on employment and growth creation. The "Agenda for a sustainable and competitive European tourism" adopted in October 2007 aims to "deliver economic prosperity, social equity and cohesion and environmental and cultural protection". The Tourism

Policy aims to achieve right balance between the welfare of tourists, the needs of the natural and cultural environment and the development and competitiveness of destinations and businesses requires an integrated and holistic policy approach where all stakeholders share the same objectives.

## **COMPARATIVE ASSESSMENT OF EU POLICIES – APPLIED METHODOLOGY**

The first step of the assessment methodology is: *Elaboration of assessment matrix*. The matrix consists of policy measures and areas of impact. The assessment will be applied from the three aspects of the multifunctionality: economic, environment and social, which are a prerequisite and precondition for sustainable rural development.

The second step is: *Identification of areas of potential impact in each domain/area* (economic, social and environment).

Potential impact in *economic domain is assessed* in the following areas: diversity of products, contribution to income from agriculture, quality of products, development of non agricultural activities, processing of dairy or meat products, services, contribution to income from forestry, utilization of timber and non-timber forest resources, contribution to the income generation from tourism, farm size, land use, modernization of farms.

Potential impact in *social domain is assessed* in the following areas: contribution to employment, contribution to rural viability, animal welfare cultural heritage, provision of recreational areas, decreased/stopped migration outflow, migration inflow to rural areas, job opportunities, contribution to income, improved age structure.

Potential impact in *environmental domain is assessed* in the following areas: provision of recreational areas, water conservation, soil conservation, improvement of agricultural landscapes, contribution to air quality, use of renewable resources, supply of renewable energies, energy use reduction in horticulture, manure processing, reduction of ammonia emission in intensive livestock production, biodiversity, diversification of activities towards ecological production.

The next step is: *Assessment of potential impact of EU policies on multifunctionality*, based on expert's qualitative assessment.

The fourth step comprises: *Calculation the potential impact and ranking the policy measures/submeasures by ABC method* which is a management method that categorizes items in terms of importance.

## **RESULTS AND ANALYSIS**

### **IPA impact on multifunctionality**

Instrument for Pre-Accession Assistance in the selected case studies is valid for Croatia. There are five priorities, detailed in measures and submeasures.

IPA measures will have significant influence on economic domain and areas of potential impact. The only area in economic domain that will not be influenced is the farm size.

Three of submeasures are expected to have 100% positive impact on multifunctionality - 3.2.1. Improving the investment opportunities; 3.2.2. Transfer of technology and incentives for new enterprises; 5.2.2. Preparation and implementation of local rural development strategies (Table 1). Prioritization of submeasures of IPA is given in Table 1. Fifty percent of measures have positive impact on economic domain of multifunctionality more than 80%. The outputs of their implementation will contribute to multifunctional land use and multifunctional landscape. Other 37,5% have positive impact between 59 and 80%. Thus the IPA measures, despite their diversity and focus, will have positive impact on multifunctionality.

**Table 1**

**Ranking of IPA measures according to their complex positive impact on multifunctionality**

A>80%	3.2.1. Improving the investment opportunities
	3.2.2. Transfer of technology and incentives for new enterprises
	5.2.2. Preparation and implementation of local rural development strategies
B 50-80%	1.3. Developing capacities of NGOs for monitoring the harmonisation with the AC in the field of natural resource management and regional sustainable development
	2.1.1. Tourism and rural development measures
	2.1.2. Development of entrepreneurship
	2.2.1. Environmental protection measures
	2.2.2. Preservation of protected areas
	3.1.1. Investments in business infrastructure
	3.3.1. Strengthening the institutional capacities
	3.3.2. Development of sectoral studies, action plans and project proposals
	4.3.1. Further development of Croatian Qualification Framework
	4.3.2. Strengthening the system of education for adults
	4.3.3. Strengthening institutions in vocational education and education of adults
	5.1.1. Investments in farms (restructuring and reaching the Community standards)
	5.2.1. Activities for improvement environment and landscape
	5.3.2. Diversification and development of rural activities
C<50%	1.1. Enforcing the role of NGOs in monitoring harmonisation with the Acquis Communautaire (AC)
	1.2. Enforcing the capacity of NGOs in monitoring the anti-discrimination strategies
	2.1.3. Cultural and social co-operation
	4.1.1. Improving the access to employment and labour market
	4.2.1. Support to groups with disabilities regarding education
	5.1.2. Investments in processing and marketing of agricultural and fishery products
	5.3.1. Improvement of rural infrastructure

Four measures have no impact on social domain of multifunctionality - 2.1.3. Cultural and social co-operation; 2.2.1. Environmental protection measures; 2.2.2. Preservation of protected areas; 1.3. Developing capacities of NGOs for monitoring the harmonization with the AC in the field of natural resource management and regional sustainable development. The most important measure is - 5.2.2. Preparation and implementation of local rural development strategies with



100%. Submeasures - 5.3.2. Diversification and development of rural activities; 5.1.1. Investments in farms (restructuring and reaching the Community standards); 3.2.2. Transfer of technology and incentives for new enterprises; 3.2.1. Improving the investment opportunities have respectively 88.9% and 77.8%.

Only three measures have potential positive impact over 80% on social domain. 55% of measures are in group B with impact between 50 and 80%. The rest are in groups C with impact below 50%.

Use of renewable resources and Diversification of activities towards ecological production have the highest neutral impact on environment domain. In the rest of areas it is observed relative balance among positive and neutral impact. Measures under Regional Development Priority will have positive impact on multifunctionality, while those under priority Human Resource Development – have neutral impact. Two measures under priority Rural Development - 5.2.1. Activities for improvement environment and landscape and 5.2.2. Preparation and implementation of local rural development strategies are evaluated with 100% positive potential impact.

### **Rural Development Policy impact on multifunctionality**

Assessment of potential impact of the Rural Development Policy (RDP) is done by assessing complex impact of axes measures. It is observed diversity of measures and submeasures in each country. Country results are presented below:

#### *France*

Ten percent of all measures have/will have very high impact (>80%) on multifunctionality - Measure 111 A : Training of workers from agricultural, forestry and agrifood sectors; Measure 331 : Training and information; Measure 411,412,413. Implementing local development strategy; Measure 421. Inter-Territorial and Trans-National Cooperation; Measure 431. Running the Local Action Group, Acquiring Skills and Animating the Territory. One-fourth of measures potentially will influence multifunctionality between 50% and 80% - Measure 111 B: Information and diffusion of scientific knowledge and innovative practices; Measure 121 A2: Mechanization in mountain areas; Measure 121 C2 : Investment in the CUMA; Measure 121 C4 : Investment for transformation at the farm level; Measure 121 C7 : support for agricultural production diversification; Measures 211 / 212 : Payments intended for the farmers located in mountainous areas which aim at compensating for natural handicaps – ICHN; Measure 214-A : Agro-Environmental grass premium (PHAE) (national base); Measure 214-D : Organic farming - Conversion ; Measure 214 E : Organic farming - Maintain; Measure 216 : Support for non productive investment; Measure 226-A : Work of reconstitution of the forest plantations disaster victims by the storms of 1999 and by other natural events (national base); Measure 341-B : Local development strategies apart of the forest-wood chain. Prevailed part of measures (65%) have average impact (<50%) on multifunctionality. The complex ranking of measures from different axes is given in *Table 2*.

Table 2

**Ranking of measures from French RDP, according their complex positive impact on multifunctionality**

A > 80	Measure 111 A : Training of workers from agricultural, forestry and % agrifood sectors
	Measure 331 : Training and information %
	Measure 411,412,413. Implementing local development strategy
	Measure 421. Inter-Territorial and Trans-National Cooperation
	Measure 431. Running the Local Action Group, Acquiring Skills and Animating the Territory
B 50-80%	Measure 111 B : Information and diffusion of scientific knowledge and innovative practices
	Measure 121 A2 : Mechanisation in mountain areas
	Measure 121 C2 : Investment in the CUMA
	Measure 121 C4 : Investment for transformation at the farm level
	Measure 121 C7 : support for agricultural production diversification
	Measures 211 / 212 : Payments intended for the farmers located in mountainous areas which aim at compensating for natural handicaps - ICHN
	Measure 214-A : Agro-Environmental grass premium (PHAE) (national base)
	Measure 214-D : Organic farming - Conversion
	Measure 214 E : Organic farming - Maintain
	Measure 216 : Support for non productive investment
	Measure 226-A : Work of reconstitution of the forest plantations disaster victims by the storms of 1999 and by other natural events (national base)
Measure 341-B : Local development strategies apart of the forest-wood 80% chain	
C < 50%	Measure 112 : setting up of Young Farmers
	Measure 121 A1 : Modernization plan of the livestock buildings (PMBE)
	Measure 121 A2 : Mechanisation in mountain areas
	Measure 121 A2 : Mechanisation in mountain areas
	Measure 121 C3 : Young farmers investment
	Measure 121 C5 : Investment linked to quality approach
	Measure 122 A : Improvement of the existing forest plantation
	Measure 122 B : Work of afforestation of old coppices, coppice under grove, or of groves of poor quality, work of conversion of coppice or coppice under grove into grove
	Measure 123 A : Investments in the agrifood companies
	Measure 123 B : Equipment of companies for mobilization of the forest products
	Measure 124 : Co-operation for the development of new products, processes and technologies in the agricultural and food sectors
	Measure 125 A : Forest service road
	Measure 125 B : Support for collective water reserves or of substitution
	Measure 125 C : Support to other infrastructures of the agricultural sector
	Measure 132 : Encourage the farmers participation in modes of food quality
	Measure 133 : Support for the activities of information and promotion for the products being the subject of modes of food quality
	Measure 214-F : Protection of the threatened races
	Measure 214-H : Improvement of the pollinating potential of the domestic bees for the safeguarding of the biodiversity
	Measure 214-I-1 : Territorialized MAE - Natura 2000
	Measure 214-I-2 : Territorialized MAE- Water framework Directive
	Measure 214-I-3 : Territorialized MAE – Other environmental issues
	Measure 226-B : Improvement of the stability of the forests and the soils in mountain
	Measure 227-B : Nonproductive investments in forest areas
	Measure 311 : Diversification towards non-agricultural activities

C<50%	Measure 312 : Support for the creation and the development of the microcompanies
	Measure 313 : Promotion of the tourist activities
	Measure 321 : Basic services for the economy and the rural population
	Measure 323-A : Development and animation of the documents of objectives Natura 2000
	Measure 323-B : Investments related to the maintenance or the restoration of the Natura 2000 sites (except forest areas and agricultural production)
	Measure 323-C : integrated system in favour of the pastoralism (additional financing)
	Measure 323-D : Conservation and development of the natural heritage
	Measure 323-E: Conservation and development of the cultural heritage, improvement of the framework of life
	Measure 341-A : Local development strategies of the forest-wood chain

### UK

Prevailed percent of measures (88%) constitute the group C<50%. There are no measures included in group A>80% impact. Three of all measures have potential impact between 50 and 80%. Ranking of measures from different axes is given on Table 3.

**Table 3**

### Ranking of measures from UK RDP, according their complex positive impact on multifunctionality

A>80%	
B 50-80%	
C<50%	Measure 111. Vocational training and information actions for persons engaged in the agricultural, food or forestry sectors
	Measure 114. Use by farmers and forest holders of advisory services 0.0
	Measure 115. Setting up of farm management, farm relief and farm advisory services (legacy only)
	Measure 121. Agricultural holding modernisation
	Measure 122. Improving the economic value of forests
	Measure 123. Adding value to agricultural and forestry products
	Measure 124. Co-operation for the development of new products
	Measure 125. Infrastructure related to the development and adaptation of agriculture and forestry
	Measure 212. Agricultural payments to farmers in areas with other handicaps
	Measure 214. Agriculture and Agri-environment Payments
	Measure 216. Agricultural Support for non productive investment
	Measure 221. For first afforestation of agricultural land
	Measure 223. For First afforestation of non-agricultural land
	Measure 225. For Forest-environment payments
	Measure 227. For Support for non-productive investments
	Measure 311. Diversification into non-agricultural activities
	Measure 312. Support for the creation and development of micro-enterprises (LEADER approach)
	Measure 313. Encouragement of tourism activities (including legacy) (LEADER approach)
	Measure 321. Basic services for the economy and rural population (legacy only)
	Measure 322. Village renewal (legacy only)
Measure 323. Conservation and upgrading of rural heritage (LEADER approach)	
Measure 331. Training and information (LEADER approach)	
Measure 341. Skills acquisition, facilitation and implementation (non-LEADER)	

Germany

9.5% of all measures have/will have impact between 50% and 80% - Programme for the promotion of on-farm investments (AFP); Innovative investments for the restructuring, rationalisation and development of farms (formerly fund for credit for investments); Measures for Natura 2000 protection areas and other zones with high natural value; Skills acquisition and animation with a view to preparing and implementing a local development strategy. Most of measures influence multifunctionality moderately (<50%). According to expert's assessment measures under Axis 4 it is difficult to evaluate potential impact or lack of such on multifunctionality. Hierarchisation of measures is illustrated on *Table 4*.

**Table 4**

**Ranking of measures from German RDP, according their complex positive impact on multifunctionality**

A>80%	
B 50-80%	Programme for the promotion of on-farm investments (AFP)
	Innovative investments for the restructuring, rationalisation % and development of farms (formerly fund for credit for investments)
	Measures for Natura 2000 protection areas and other zones with high natural value
C<50%	Vocational training, information actions, including diffusion of scientific knowledge and innovative practices for persons engaged in the agricultural, food and forestry sectors
	Use by farmers and forest holders of advisory services
	Farm modernisation
	Adding value to agricultural and forestry products
	Cooperation for development of new products, processes and technologies in the agricultural and food sector
	Improving and developing infrastructure related to the development and adaptation of agriculture and forestry
	Land consolidation
	Construction of agricultural paths
	Improvement and extension of forestry infrastructure
	Restoring agricultural production potential damaged by natural disasters and introducing appropriate prevention actions
	Payments to farmers in areas with handicaps, other than mountain areas
	Natura 2000 payments and payments linked to Directive 2000/60/EC
	Agri-environmental payments
	Support for a local and market adapted agriculture (MSL)
	Voluntary environmental protection programmes
	Conservation of genetic resources
	First afforestation of agricultural land
	First afforestation of non-agricultural land
	Natura 2000 payments
	Forest environment payments
	Support for non-productive investments
	Diversification into non-agricultural activities
	Support for the creation and development of micro-enterprises
	Encouragement of tourism activities
	Basic services for the economy and rural population

C<50%	Improvement of infrastructures in the field of water disposal
	Improvement of infrastructures in the field of drinking water
	Improvement of infrastructures in the field of investments in small schools
	Improvement of infrastructures in the field of investments in kindergartens
	Village renewal and development
	Conservation and upgrading of the rural heritage
	Environmentally friendly watercourses development
	Conservation of the wine shaped landscape in wine producing zones in Saxony-Anhalt
	Actions for the sensibilisation to environment protection
	Skills acquisition and animation with a view to preparing and implementing a local development strategy

*Czech Republic*

According to the expert's evaluation all measures have/will have moderate influence on multifunctionality. Ranking of measures according their positive influence on multifunctionality is given in *Table 5*.

**Table 5**

**Ranking of measures from Czech RDP, according their complex positive impact on multifunctionality**

A>80%	
B 50-80%	
C<50%	Measure 111. Further vocational training and information actions
	Measure 112. Setting up of young farmers
	Measure 113. Early retirement from farming
	Measure 114. Use of advisory services
	Measure 121. Modernization of agriculture holdings
	Measure 121 A.Cooperation for development and application of new products, processes and technologies in the agriculture sector
	Measure 121 B. Planting of fast-growing tree species designed for use in energy generation
	Measure 122. Forest machinery
	Measure 123. Technical equipment of work place
	Measure 123 A. Adding value to agricultural and food products
	Measure 124. Cooperation for development of new products, processes and technologies (or innovations) in food industry
	Measure 125. Forest infrastructure
	Measure 125 A. Land consolidation
	Measure 142. Producer groups
	Measure 211/212. Natural handicap payments provided in mountain areas and payments provided in other areas with handicaps
	Measure 213. Natura 2000 payments and payments linked to Water Framework Directive 2000/60/EC (WFD)
	Measure 214. Agri-environmental measures
	Sub-measure "Environment friendly farming methods"
	Sub-measure "Grassland maintenance"
	Sub-measure "Landscape management"
	Measure 221. Afforestation of agricultural land
	Measure 221 A. First afforestation of agricultural land

C<50%	Measure 224. Payments within Natura 2000 forest areas
	Measure 225. Forest-environment payments
	Measure 226/227. Restoring forestry potential after disasters and promoting social functions of forests
	Measure 311. Diversification into non-agricultural activities
	Measure 312. Support for business creation and development
	Measure 313. Encouragement of tourism activities
	Measure 321. Village renewal and development
	Measure 322. Public amenities and services
	Measure 323. Conservation and upgrading of the rural cultural heritage
	Measure 331. Training and information
	Measure 431. Local action group (LAG)
	Measure 411,412,413. Implementing local development strategy
Measure 421. Implementation co-operation projects	

### Bulgaria

Forty-five percent of measures have potential positive impact between 50 and 80 per cent. The rest of 55% of measures have moderate impact (<50%). Ranking of measures according to their potential positive impact is given in *Table 6*.

**Table 6**

### Ranking of measures from Bulgarian RDP, according their complex positive impact on multifunctionality

A>80%	
B 50- 70%	Measure 121. Modernisation of Agricultural Holdings %
	Measure 214. Agri-environmental Payments
	Measure 223. First afforestation of non-agricultural land
	Measure 226. Restoring forestry potential and introducing prevention actions
	Measure 311. Diversification into Non-Agricultural Activities
	Measure 312. Support for the Creation and Development of Micro-Enterprises
C<50%	Measure 322. Village Renewal and Development
	Measure 111. Training, Information and Diffusion of Knowledge
	Measure 112. Setting up of Young Farmers
	Measure 122. Improving the Economic Value of Forests
	Measure 123. Adding Value to Agricultural and Forestry Products
	Measure 141. Supporting Semi-Subsistence Farms Undergoing Restructuring
	Measure 142. Setting up of Producer Groups
	Measure 211. Natural Handicap Payments to Farmers in Mountain Areas
	Measure 212. Payments to Farmers in Areas with Handicaps, Other Than Mountain Areas
	Measure 313. Encouragement of Tourism Activities
Measure 321. Basic Services for the Economy and Rural Population	
Measure 431. Running the Local Action Group, Acquiring Skills and Animating the Territory	

### Cohesion Policy impact on multifunctionality

Cohesion policy has a big diversity of country implementation. Despite the fact that in each country Cohesion policy is implemented through Operational Programmes and three funds - ERDF, ESF and CF, it is observed variety of priorities and

measures. National operational programmes play supporting and supplementary role to the Rural Development Policy and National Plans for Rural Development in the areas of multifunctionality

- ERDF support initiatives linked to small and medium enterprises, innovations, competitiveness, regional development (excluding rural areas). In some countries (i.e. Bulgaria) ERDF financed initiatives in tourism.
- CF and ERDF are main sources of finance for all environment initiatives.
- ESF is related to human resource development, education and health.

## CONCLUSIONS

The implementation of EU policies on national and regional level focuses on coherent regional development, achievement of relevant regional competitiveness and sustainability. Evaluation of EU policies in rural areas shows that there is symbiosis between different them. Possible overlaps are cleared. Despite general framework there is diversification of measures and actions characterizing complexity and differences between countries and regions.

The analysis on the potential effects of the policies on the multifunctional character of the activities shows the domains of action supposed to have the greatest influence in terms of multifunctionality. Moreover, it highlights the differences between countries due to their specificity. Cohesion Policy has supplementary influence on multifunctionality.

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## EMPLOYMENT AND GREEN ECONOMY

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### **ABSTRACT**

*Hungary's accession to the EU was an important strategic decision in economic, political, and environmental, as well as in social respect. Exploiting the advantages of the accession is the biggest challenge nowadays. Our economy primarily relies on fossil fuels – crude oil, natural gas, coal, and their derivatives – which are not only used up rapidly but also pollute the environment and increase our dependence, thus hindering process. That is why we must pay increased attention to renewable energy resources, which are inexhaustible considering the human scale and they pollute the Earth to a smaller extent. It is also important in order to join the EU cohesion policy, whose main goal is to equalize the disparities between the regions, including the problem of rural employment. The competitiveness of the rural areas of Hungary depends on their economic growth and the implementation of sustainability. We need new complex rural and settlement strategies to stop the negative processes in the disadvantaged regions, which will result in a competitive agricultural structure and the possibility to employ the great numbers of low-qualified people living there. In Hungary, the ratio of the unemployed has increased since the regime change accelerating in the recent period – affected by the crisis – after a transitional period. The majority of the unemployed have low qualifications, which makes it difficult for them to find a job. On the other hand, the ratio of the land formerly involved in cultivation is relatively high. In my view, the solution to the problem is at hand. In most cases, unused land could be cultivated again, using the free capacity of the presently unemployed and mostly low-qualified population. In my opinion, one of the possibilities is planting energy forests and cultivating them afterwards.*

Keywords: fossil minerals, dependency, unemployment, green economy, land utilization

### **INTRODUCTION**

The discussion of food crisis has faded into the background-overshadowed by the global macroeconomic crisis and the financial crisis. The sharp rise in prices of basic foodstuffs created extreme difficulties for a large part of the world's population. The food crisis affected more people more severely than the macroeconomic issue because the populations most affected by sharply rising food prices spend larger shares of their income on food. The global food crisis produced an extraordinary human impact, larger and more adverse than the global financial crisis (*Table 1*). One indication of the severity is the remarkable amount of recent civil unrest and political instability in dozens of countries (Ethiopia, Egypt, Mexico, Thailand) because people were unable to afford basic nutrition.

Political responses were also extraordinary. Much of the world's system of trade in foodstuffs broke down temporarily as food exporting countries moved to limit

or even ban exports in attempts to provide some protection to their domestic consumers. The severe economic slump worldwide represents an extraordinary world downturn-the worst downturn since the great depression. All these issues have diverted the attention from the food crisis. The crisis led many people to write off the food and more broadly the commodity price crisis of 2008 as a widespread belief that the event was a speculative bubble-too many people traded commodities, driving commodity prices to unsustainable levels-and that concerns about ultimate supplies of food were misplaced (*Krugman, 2009*).

Many people are unaware of the speed with which we are consuming our natural resources. We are producing waste far faster than it can be recycled. It is important to compare the needs for public goods and services with arguments whether or not market failures are linked to the provision of services. Market failure is a crucially important justification for taking measures to protect our landscapes. Corrections in market failures may also be achieved through investments and the provision of payments to reward land managers who provide public goods and services (*European Commission, 2008*).

**Table 1**

**Future Environmental Scenario to 2050**

Use	2000	2010	2050	Difference	Difference	Difference
	Million km2	Million km2	Million km2	2000 to 2010	2010 to 2050	2000 to 2050
Natural areas	65.5	62.8	58.0	%	--8%	-11%
Bare natural areas	3.3	3.1	3.0	-6%	mi1%	-9%
Managed forests	4.2	4.4	7.0	5%	62%	70%
Extensive agriculture	5.0	4.5	3.0	-9%	-33%	-39%
Intensive agriculture	11.0	12.9	15.8	17%	23%	44%
Woody biofuels	0.1	0.1	0.5	35%	437%	626%
Cultivated grazing	19.1	20.3	20.8	6%	2%	9%
Artificial surfaces	0.2	0.2	0.2	0%	0%	0%
World Total	108.4	108.4	108.4	0%	0%	0%

Source: *Braat and Brink, 2008*

Nowadays, however, the whole world is seeking the possibilities of how to get out of the crisis; the whole world including countries that have dominant economic influences and open and sensitive countries as well, such as Hungary – with different possibilities in different political and economic environments. The crisis penetrated to Hungary like to most of the countries in the world – without having been prepared for it; and we see that the solutions to the problem (bioenergetics, environmental industry, research, education etc.) are mainly only predictions and there is no strategy at all (we have merely been talking about agricultural strategy for 20 years). Without definite aims and authoritative strategies we might become hopeless, futureless and losers (the North Star does not serve the purpose to reach itself either but to help orientation and show the right direction).

Today we have already learned that the processes applied previously cannot be carried on successfully either in the world or in Hungary. Within industry, agriculture and services novel and yet unknown tendencies and developments might mean the solution to the problems. Based on the recent research carried on in the last few years our attention at Károly Róbert College has been drawn towards our environment, sustainability and agriculture. According to our judgment, one of the possible ways of getting out of the crisis is to utilize our natural resources and to accomplish a sustainable economy (Magda, 1998).

Beside the rational utilization of the natural resources and the application of renewable energy resources we have to be more effective in the field of human resource development than we are at present. On the basis of our judgment and recent experience the production and economy can obtain new and confirmative support through the relation system of research – innovation – corporate development, which help priorities to be properly defined and to have satisfactorily skilled labor force available for the works to be done. All of these require a new way of thinking, new educational policy and new future prospects (Bozsik, 2004).

After 1990 lot of changes has happened in Hungary which in many cases were connected with the world economy, but we can find Hungarian specialties also. In the last 10 years we joined to the EU which has changed our social and economic circumstances (Gergeby, 2010). Analyzing our natural and economic resources we will have to mention the arable land, water capacity, and labor force. In the last years the utilization of the arable land has changed to a great extent. We can see huge decrease in the agricultural area – I will show it later -, and at the same time our energy dependency has increased to over than 70% nowadays, and if we consider only the crude oil and natural gas production they are more than 85%. The last drop was the economic crisis which started from the USA and moved all over the World.

## DISCUSSION

Analyzing the background the first fact that must be mentioned is the changes of the agricultural land utilization. After 1990 the Hungarian agricultural production decreased step by step and nowadays the ratio from the GDP is less than 3% which was near 10 at the beginning of 1990s. If we want to find the reasons of the decreasing we will have to see the changes of the agricultural land area (Table 2).

**Table 2**

### Land area of Hungary by land use categories

Year	Arable land	Garden	Orchard	Vineyard	Grassland	Agricultural area
1986	4,704.8	338.6	99.0	147.4	1,233.7	6,523.6
2000	4,499.8	101.6	95.4	105.9	1,051.2	5,853.9
2010	4,501.6	96.1	93.7	82.8	762.6	5,536.8
1986/2010	95.7	<b>28.4%</b>	94.6%	<b>56.2%</b>	61.8%	84.9%

On the basis of the table we can see the highest reduction in gardens, but the quantity was not so high than it was in the grassland. In my opinion this reduction is connected with the decreasing number of the animals. Summarizing the table nowadays we use nearly 1 million hectare less agricultural land than we did in the past. It means we have got free capacities which we will have to use in the future.

We have to think about the utilization, because our energy dependency has increased in the last twenty years. In industrial activities we used and today we also use mostly fossil minerals to generate electricity. Our consumption will be hire and hire, but our stocks from these resources are limited. When we look the figures, we can see this (*Table 3*)

**Table 3**

**Hungarian crude oil, natural gas production and import  
between 1980 and 2009**

	1980	1988	1994	1999	2009
Crude oil production (mt)	2.031	1.947	1.334	1.243	0.827
Natural gas production (mm3)	6.142	6.272	5.564	3.293	3.241
Crude oil import (mt)	8.336	7.262	5.821	5.933	6.974
Natural gas import (mm3)	4.045	5.371	5.063	8.704	11.72

Source: *Mineral raw material wealth of Hungary* 2010

In 1980 our crude oil production was 2.031mt in contrast with the oil import (8.336mt). It means that the import was 4 times bigger than the production. It was not so good, but the situation in 2009 was even worse than in 1980, because the import was more than 8 times bigger than the production and the price of this resource has also increased. Therefore our dependency has doubled in the last 30 years.

The situation is similar considering natural gas, but 30 years ago the Hungarian production (6.142) was bigger than the import (4.045mt). After 30 years our gas import is 3.6 times bigger than our production, so the situation has changed completely. That is exactly what I referred to earlier when I pointed our energy dependency. In that situation we will have to find resources which help us to decrease our defenselessness. Lord Stern calculated that governments should spend at least 20% of their stimulus on green measures to achieve emission targets (*Stern*, 2006).

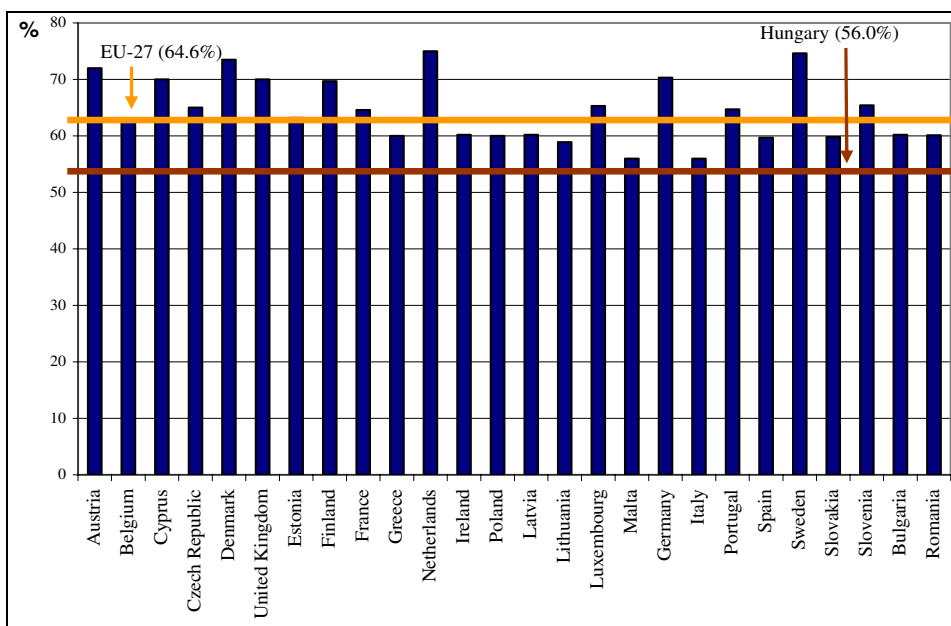
After these facts I have to mention the world crisis which started in 2008 in the USA and appeared all over the world. I will focus on the effects of the crisis on the labor market (*Galgóczy-Németh*, 2009). When the crisis was suddenly appeared many people lost their workplaces, and increased the ratio of the unemployment all over the world. It was not different in our country. Analyzing the labor market we perceived changes, eg.:

- fell in employment
- increase of the unemployment
- changes in inactivity
- differences by qualifications, ages and gender
- sectoral differences.

The specifics must be presented because in my opinion they will help us find the solution for our problems. I have already mentioned that the crisis was perceptible in all countries which we can see in *Figure 1*.

**Figure 1**

**Employment rate of the population aged 15-64, 3rd Quarter 2010**



Source: *Statistical reflections, HCSO 5/2011* 13 April 2011

In 2010, the decrease in the number of employed people stopped, but restoring the level of employment before the beginning of the crisis will take probably longer. According to the data of figure 1 the average employment rate was 64.4% in the EU, when the Hungarian was only 56.0% which was one of the lowest in the EU member states. On the other hand we can find some country eg. Austria, Denmark, Netherlands, Germany, Sweden where this index was above 70%. The target in the EU is 70%, but it will be very difficult to reach it for every countries. In my opinion that is the greatest problem in our country nowadays and we will have to solve this in the near future if we do not want to drop behind.

The average unemployment rate was 9.3% in the EU at the end of 2010. The Hungarian figure was 10.9%, but in the beginning of the following year it was over than 11%, so the annual average was hardly lower than the peak of 12.1% in 1993. The increasing unemployment along with the stagnating employment can be attributed to the following factors:

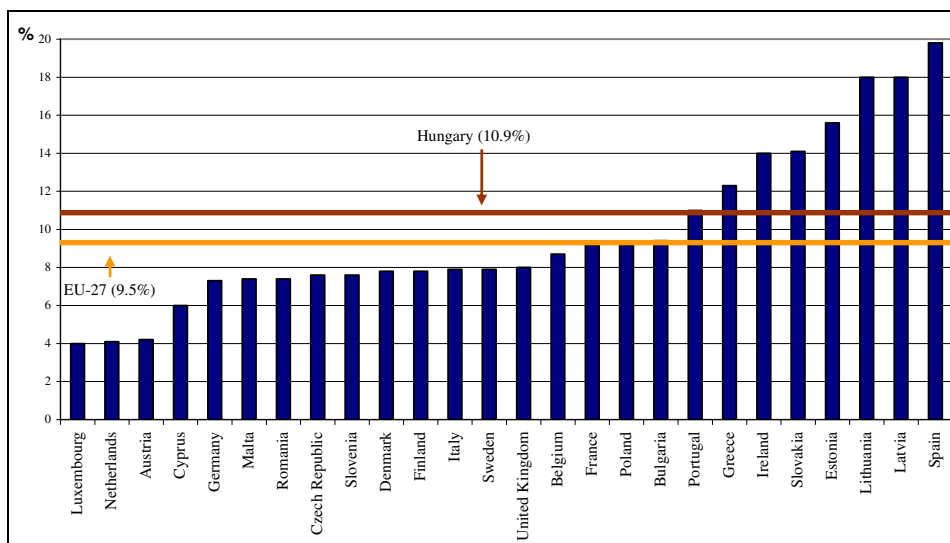
- The gradual rise in retirement age increases labor force supply.
- The modification of the unemployment provision system requires a more active presence in the labor market also from people who were considered inactive earlier.

- Fewer and fewer people losing their job are provided for by the social and social insurance system, so they become long-term jobseekers.

In *Figure 2* we can see that the highest ratio was in Spain, where the economic situation is very bad nowadays – nearly double than in Hungary. In countries where the economy is based on stable basis the unemployment rate was not as high as in countries where it is not.

**Figure 2**

**Unemployment rate of the population aged 15-64, 3rd Quarter 2010**



Source: *Statistical reflections, HCSO 5/2011 13 April 2011*

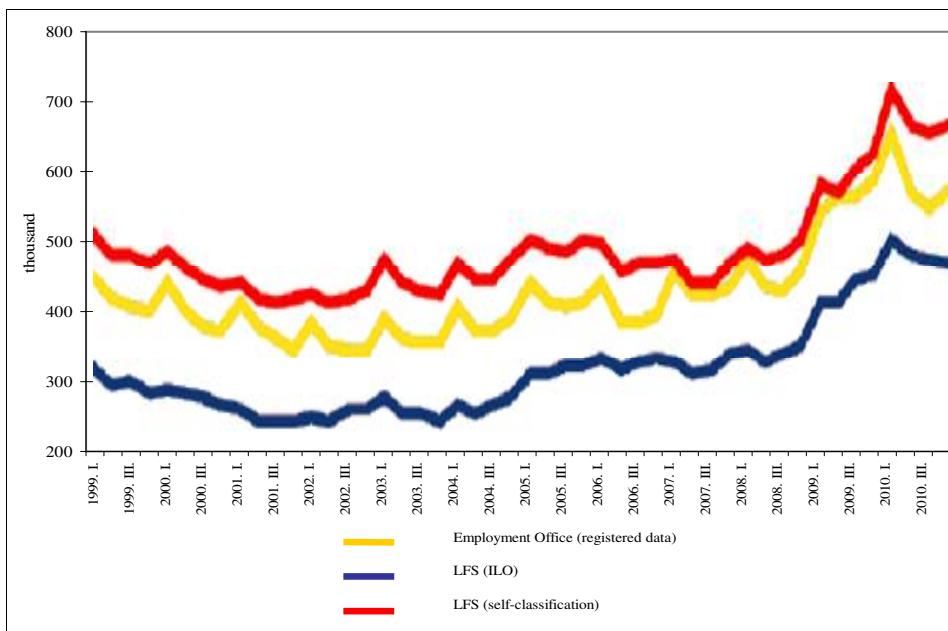
I analyzed the differences between the registered jobseekers and the unemployed people between 1999 and 2010 (*Figure 3*). During the examined period the number of unemployed was the lowest according to Labor Force Survey while the highest was among those who consider themselves unemployed. The latter one is more real, so we will have to solve the problem of nearly 700 thousand unemployed in the near future if we do not want bigger problems than we have nowadays.

The third thing is the ratio of the inactive segment of the population. In 2010, 37.1% of the population aged 15-64 was inactive in Hungary. The average rate was nearly 10% less in the EU. The number and the proportion of inactive people, along with the increase in the number of unemployed, decreased compared to the previous year.

The decrease concentrated in the categories of pensioners (-32 thousand) and of „other inactive” (-18 thousand) who are not students and not receive any personal provision. Even so, the largest group of inactive is composed of pensioners with proportion of 39%, followed by the group of full time students with 32%. The number of the so-called other inactive is invariably significant (nearly 360 thousand) as well.

Figure 3

Number of registered jobseekers and of unemployed people according to the Labor Force Survey, 1999-2010 (quarterly averages)



Source: *Statistical reflections*, HCSO 5/2011 13 April 2011

Having analyzed the distribution of the unemployed people by gender and age I was surprised to find that the biggest segment – approximately 260 thousand– is composed of people between 25-44 years of age (*Table 4*). It is both bad and good at the same time. It is bad because in this age group more people would have to work, and it would be good in the future because they will be potential workers for a long time in different sectors of the economy.

Table 4

Number of unemployed people between 2006-2010 by gender and age (thousand)

Year	15-24		25-44		44-64		65-74		Total
	W	M	W	M	W	M	W	M	
2006	28.8	35.3	81.4	89.0	41.9	40.1	0.1	0.2	316.8
2007	25.1	32.5	83.6	87.1	39.0	44.4	0.0	0.2	311.9
2008	27.1	33.9	81.1	94.7	46.4	45.6	0.3	0.1	329.2
2009	31.3	47.9	99.4	126.2	56.1	59.4	0.3	0.1	420.7
2010	32.5	46.7	<b>112.5</b>	<b>146.5</b>	65.1	71.2	0.0	0.2	474.8

In what follows I will illustrate the differences by gender and qualification. In general the ratio of unemployment amongst the less qualified employees was higher than amongst the well qualified people. That was the situation in the past and it also holds true nowadays. After the first few months of the crises we could see an increase in the number of the unemployed.

The increase was higher in the industrial sector – mostly qualified workers – than in the agricultural sector where we had witnessed this process earlier. According to *Table 5* we can see that the number of the unemployed is more than 300 thousand in the first two categories, and we can see the lowest number who has college or university degrees.

**Table 5**

**Number of unemployed people between 2006-2010 by gender and qualification (thousand)**

Year	Elementary School, or less		Trade School		Grammar School		College, University		Total	
	W	M	W	M	W	M	W	M		
2006	47.9	54.9	41.9	65.9	39.4	32.9	13.0	10.9	152.2	164.6
2007	46.0	57.3	39.3	63.8	46.9	33.3	15.5	9.8	147.7	164.2
2008	49.9	61.3	37.6	68.6	51.6	34.6	15.8	9.8	154.9	174.3
2009	60.1	73.0	48.9	93.4	56.7	51.1	21.4	16.1	187.1	233.6
2010	64.1	79.6	51.1	106.2	71.5	57.0	23.6	21.6	210.3	264.5

### How shall we find the way out?

This is a very simple question, but the answer is very difficult and complex. Thinking about the problem of land utilization, energy dependency and the labor force where can we find the solution: in the industry, in the agriculture or in the service sector? When we look at *Table 6* we can see huge decreases in the agricultural and industrial employment also, and an increase only in the service sector.

**Table 6**

**Number and ratio of the employed people by economic sectors (15-64 years)**

Specify	Number (thousand)			Ratio (%)		
	1990	2000	2009	1990	2000	2009
Agriculture	697.2	251.9	173.5	15.4	6.6	4.6
Industry	1,711.0	1,299.7	1,174.4	37.9	33.9	31.3
Services	2,107.9	2,280.4	2,403.4	46.7	59.5	64.1
Total	4,516.1	3,832.0	3,751.3	100.0	100.0	100.0

In 1990 the employment rate was higher – by approximately 700 thousand people – than in 2009, but the number of the population did not decrease so high in the



same period. So we have free capacities in the different sectors which we will have to utilize in the future. What would be the solutions?

Our country is really lucky because it has enough arable land and water capacity. Without these two resources it would be impossible to produce anything. The third factor would be the not well qualified unemployment people. So our task in the future is to find types of utilization possibilities which use all of these resources and help us to decrease our energy dependency. I believe we have already started something, but not in the most effective way.

If we want success in the near future we will have to combine these factors. I am going to show one possibility in the *Picture 1*, *Picture 2* and *Picture 3*.

**Picture 1**

**Energy forest**



**Picture 2**

**Intensive horticulture**



**Picture 3**

**Renewable energy utilization**



In the first picture we can see harvest in the energy forest, in the second one intensive horticultural technology, and in the third one a renewable power station. How is it

connected with my topic? Earlier I wrote about our problems and possibilities. According to these pictures we can understand the process. If the country has free – uncultivated – land one way for using it is by planting energy forest. We can employ for this work the unemployed who have not so high qualification to work in a high tech, or other industries. On the other hand we can decrease our energy dependency, because we would not have to use so many fossil minerals – crude oil, natural gas, coal. The other useful way for the utilization would be the intensive horticulture where we can also use those resources which I have already mentioned.

## CONCLUSION

Summarizing my opinion generally, the current global economic crisis may well become the longest in three generations. If trust in finance and economy does not return rapidly, economic reform, socio-economic growth and political stability will suffer. While some confidence in the financial system will return in due course, a new financial architecture is required to strengthen the global economy and increase economic and financial fairness. In this connection, it is critical that the needs for global food and environmental security are taken into account.

Population growth creates a rapidly growing demand for crop products. Growing energy demand and climate change will also influence food production; agriculture will contribute to emissions into the environment and also suffer or benefit from changing climates, depending on climatic zones. Additional challenges are increasing market volatility resulting from yield and end stock fluctuations and consumer sensitivity to food quality, safety, and price. The challenges are aggravated by global irresponsibility related to food security, water and environmental sustainability-and energy security. The exploitation of our entire ecosystem and the depletion of natural resources carry a price that must be paid today to compensate future generations for the losses they will face in the future.

Energy prices have seen a decline (in constant dollars) over the past 200 years. The latest fossil energy price hikes have not even brought us back to the price levels of some 30 years ago. The tragic reality is that political zeal led governments to keep fossil energy prices as low as possible, thus frustrating most attempts to increase energy productivity. Energy price elasticity is very much a long-term affair, and return on infrastructure investments crucial to the creation of an energy-efficient society requires time. Much debate surrounds the potential contribution of agriculture to renewable energies. Unfortunately, existing technologies produce energies that may be renewable, but most are not green.

The effects of the previous things are being felt in Hungary, so we have to change it. In the Hungarian economy primarily relies on fossil fuels – crude oil, natural gas, coal, and their derivatives – which are not only used up rapidly but also pollute the environment and increase our dependency thus hinders process. That is why we must pay increased attention to renewable energy resources, which are inexhaustible considering the human scale and they pollute the Earth to a smaller extent.

The difficulty for researchers lies in the fact that there are certain barriers to the utilization of these resources, and it holds true especially for Hungary. One factor

of the leap forward is in connection with financing since despite the fact that successive governments have been continuously proclaiming and stressing the opportunities, an adequate system of subsidization that is available for the majority of society has not been created. Witnessing the problems of the 12 newly acceded countries the European Union should take tangible steps rather than simply determining its expectations. The EU should name and assign resources that could form the basis of implementation.

I believe another vitally important task would be to tell how the lower quality agricultural areas could be utilized. The existing subsidy system encourages the utilization of the better-than-average areas for such purposes while the less valuable areas remain unused. It is absolutely unacceptable since it affects some 600 thousand hectares in Hungary (200 thousand hectares if it is arable land below 17 Golden Crowns; and 400 thousand hectares if it is good quality pasture). As these areas require high volume of investment and are prone to unfavorable weather conditions, they are less suitable for agricultural use but are appropriate for growing energy plants perfectly. Taking all this into account it is expedient to consider the necessity of the structural modifications in agriculture so that it could adjust to new situations, offering possibilities to utilize less valuable areas, thus contributing to increased employment and to enhance the population retention ability of rural areas.

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## HOW TO TAKE INTO ACCOUNT THE VALUES OF ECOSYSTEMS SERVICES OF VARIOUS HABITATS IN INTEGRATED COST-BENEFIT ANALYSIS?

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### **ABSTRACT**

*Global climate change may have substantially different local implications. Accordingly, the frequency and severity of extreme water related events (flood, inland inundation, and drought) may increase in Hungary. Therefore, adaptation is of crucial importance for the local population. One of the options to reduce the impact of such extreme water related events is to withhold and reserve excess water in natural areas, i.e. construct habitats that are less sensitive to changes in quantity, level, and dynamics of water. Changes in land use may, of course, imply loss of revenue for local farmers. Integrated cost-benefit analysis may be a useful tool to assess such cost implications and any possible benefits arising from improved ecosystem services of natural habitats. This assessment may enable us to better communicate to stakeholders what form of adaptation (i.e. land use change) to pursue and how it may bring best results. The primary aim of the research (in the frame of WasteRisk project, TECH\_08\_A4/2-2008—0169) is to estimate the yearly value of ecosystem services per hectare of various habitats and include the resulting values in cost-benefit analysis of changes in the built (i.e. rural villages) and natural environment*

Keywords: cost-benefit analysis, monetary valuation of natural habitats, land-use change, benefit transfer

### **INTRODUCTION**

Although Rural development is a complex issue its potentials are not exploited properly. WasteRisk project was started in 2006, (in full name: Extreme-risk area of water resources for effective, sustainable alternatives to the medium and long-term treatment). The duration time of the project is from 2009 till 2011 financed by NKTH (National Office for Research and Technology, TECH-08-A4/2-2008-0169). The final purpose of this project is to develop a water management decision support system (including a development of software and data system with a communication interface), which helps to find the best option of protection against the extreme water related events for villages along Tisza river<sup>1</sup>.

In the research of alternatives cost-benefit analysis (CBA) is also applied, which is integrated, in order to endeavour to take wide range of social effects into account for

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<sup>1</sup> The project leader is the Generalcom Engineering Ltd and other partners are: Corvinus University of Budapest, Budapest University of Technology and Economics, MTA Research Institute of Soil Science and Agricultural Chemistry, For the Living Tisza River Association Alliance

example, the value of ecosystem services of wetland habitats. According to the assumptions of this project the land use change is one opportunity to reduce the damage caused by extreme water related events. We have been studying the social effects of land-use change. From economical point of view these goods (non market goods) can be measured by the preferences of individuals, so the goal is to determine preferences in quantitative way. Since just a small part of ecosystem services own market price, which is often identified with the value of the ecosystem services. This is quite a wrong assumption because the value of the ecosystem services have to contain both market and non-market benefit. The majority of these services have not got any market or market price, therefore, during the decision making process (where we are calculating with costs and revenues) these non-market values are generally left out. The cost-benefit analysis can be found among the tools of economics, which counts (social) loss and benefits for a long period of time. CBA is a welfare theoretic method to trade off the advantageous and disadvantageous effects of a proposed project by measuring them in monetary terms (*Nunes et al., 2003*). This new perspective of economics provides an opportunity to price those services and functions which have neither market nor market price, therefore, neither can we give any value in numbers. The monetary valuation methods give price to the non-market goods.

Finally we are looking for the net social utility of impacts on the environment, which we count by comparing various costs to benefits. In the study we produce an outline of the theoretical consideration and methodological background of the integrated CBA, as well as demonstrating its practical issues in the case of wetlands.

### **THE METHODOLOGICAL BACKGROUND OF THE ASSESSMENT OF COSTS AND BENEFITS**

A traditionally cultivated agricultural field, as having land use change, can be transformed into a natural habitat, which process can also take place vica versa. Disregarding the way of transformation, our aim is to assess the social benefit of the change itself. It is relatively easy to find data of cost and income concerning the agricultural production but we have to consider that these transformed fields serve both market and non-market benefit, however, the latter is not included in the price of the crop.

It is needful to determine both market (i. e. the price of agricultural crops) and non-market value (ecosystem services) of various habitats. The proportion of these two values (market and non-market) is very different in various habitats, for example, the non-market value of a wetland is high while the non-market value of a plough-land is low (*Table 1*).

**Table 1**

#### **Proportion of market and non market value of wetlands and plough lands**

Natural Habitats	Values	
	Market value	Non-market value
Wetlands	Low	High
Plough-lands	High	Low

There are several ways of valuing changes in the ecosystem services according to literature of environmental economics. There are particular methods which identifies the costs of development with social benefits of development. These methods estimate the value which is not based on individual preferences, so economically these methods cannot be considered well established, hence these are useful to serve basic information in the decision making process. Those methods are regarded ideologically well established, which estimate ground of demand curve as the *stated preference* and the *revealed preference* methods. Practically this means that we are seeking people's WTP (willingness to pay) in relation to a given change. At the same time these methods can only bring about any proper results if they use up a great deal of time and money.

The idea of benefit transfer (BT) emerged in the early 1980s. The benefit transfer method is used to estimate economic values for ecosystem services by transferring available information from studies already completed in another location and/or context. The idea behind the BT method is simple: transfer the benefit estimates from previous primary research *study sites* to the *policy site* under consideration (Navrud, 1996). The BT appears reasonable as it could obtain useful information without too much time and money, particularly for projects that do not require a high degree of accuracy.

This involves taking the results from one or more primary economic studies with estimated values for similar impacts, and modifying and transferring them to the project being evaluated. In cases where a high degree of precision is not critical, BT may provide useful information for decision-making. Frequently, it will be the only way of providing such information. The inclusion of environmental impacts in project appraisals has increased greatly in the last 10 years. Interest in benefit transfer has grown correspondingly and literature on the subject is now substantial (Desvousges *et al.*, 1992).

There are two main categories of BT mechanism (Navrud, 2000, 2004):

- the value transfers and
- the function transfers.

In practical benefit transfer studies, the value to be transferred can be either benefit or cost. It can also be a functional transfer or a single unit value transfer. If suitable functional relations and parameters are available, then a functional transfer can be more useful to reveal the dose-response relationship and provide valuable information on the impact of a change on one variable. However, as the functions obtained from travel cost method and contingent valuation method often have low coefficients, the transfer of such functions can lead to further uncertainties. In this case, the transfer of unit value can be more manageable as it can be adjusted as necessary.

There are a number of ways to perform value transfers:

- Unadjusted, single value transfers

Here we simply transfer the value estimated from a study site to the policy site of interest. Ideally, the characteristics of the two sites would be very similar (i.e. same non-market service to be valued, same welfare measure used, similar biophysical and socio-economic characteristics).

- Adjusted, single value transfers  
Often, the study site and policy site will differ in characteristics. If the scale of sites differ, we can adjust by transferring unit values only (i.e. WTP/person/year, WTP/hectare/year).
- Average value transfers  
Here we collect a number of values estimated from previous study sites, calculate an average study site value and use this for the policy site.  
Function transfer is a more sophisticated approach of benefit transfers, where a value function is used to estimate a benefit for the policy site. There are two ways to perform function transfers:
- Use a study site function  
Here the value function (i.e. regression equation) from a study site is used for the policy site. The basic idea is to use this equation and plug-in the average income, age, and education characteristics of the policy site.
- Develop a benefit function (meta-analysis)  
The idea here is to collect information on a number of study sites and develop a regression equation to examine the factors that influence the benefit estimate.

*Spash and Vatn* (2006) refer to value transfer as within the context of information transfer in the natural and social sciences. This raises the question as to how value transfer can establish valid results within the unobservable nature of most ecosystem services values. Thereafter, the discussion on validity of values highlights the role of a wide range of biophysical and socio-economic variables. In all valuation applications the defensibility of the amounts will be the final test. At the end, the quality of primary studies determines the quality and applicability of the value transfer study. Commonly different aspects of transfer validity seem to have little attention, although specific conditions of similarity can be compiled from the literature.

*Spash and Vatn* (2006) found that low errors are expected when the following match at the two sites:

- the environmental service quantity, quality and their change,
- population, their characteristics and their use of services,
- market characteristics,
- institutional settings,
- time between primary value estimation and transfer, and
- geographical location.

The results are significantly influenced by the size of population which is taken into consideration during the aggregation (*Santos, 1998; Bateman et al., 2006*).

## THE CASE STUDY

Every year our country suffers serious economic damage, related to water management problems such as flood, inland inundation, drought etc. In the region of Hungarian Lowland the treatment of extreme water related events is a particularly important challenge. These events are gradually becoming more and more frequent according to certain climate forecasts (*Somlyódi, 2000*). These new challenges of the 21st century necessitate new methodological approaches. A key to



this approach is water management in an integrated manner. Systems have become a primary objective of water management tasks in order to be able to effectively address the flood, the inland and joint examination of the problem of drought. One of the solutions for extreme water related events is to store the excess water which later can be used for reducing drought damages. Alternatives for storing water: natural reservoirs, huge or medium sized artificial reservoirs, expand of inland inundation channels, filling the lowly areas at the time of flood etc. We are emphasizing one of the most natural solution: the storage of excess water in the nature, which involves new a approach, that is the land-use change. With the agricultural conversation the protection needs to be continued to step upon the valuable production areas, while on the less valuable areas (worthless plough land), the target is to mitigate the extent of damage. The land use change implies:

- appearance of bog habitats
- increasing the area of pasture-lands
- plantation of new forests (in order to decrease the effects of floods)
- part of the flood and inland waters can be kept in reservoirs and can be used for irrigation or fisheries
- the area of natural habitats would increase
- improvement of the soil's water balance
- ecosystem services would increase.

### **The Model of CBA**

The primary purpose of the integrated cost-benefit analysis is to estimate the yearly value of ecosystem services per hectare of various habitats, so can see the decision-makers the consequences of land use change. We value five habitats based on Corine (Geographic Information System), which are: wetlands, lakes and rivers, forests, plough-lands, and grazing grounds. The size of habitats are determined by the application of Corine.

Our model illustrates the *Table 2* and *Table 3*. We are researching the costs and revenues from the aspect of the society. The costs is classified into four categories, these are the cost of production, support, damage and wage. The categories has been formed by the available data, which provided by Research Institute of Agricultural Economics. The revenue is classified into two parts, one part originates from production, which has a market price and the other income has non-market value. One of the two revenue categories, originated from production, has a market price, while the other one is short of market price (non-market value). The total benefit of natural habitat equals the total revenue minus total cost so we can make decision by the results. The costs and revenues are given monthly based on data. The non-market benefit of the habitats are given in yearly level in the literature, but this has to be modified 12 equal part i.e. monthly level (disregard the difference between the winter and summer months).

The non-market value is calculated by the support of previous literature surveys and our survey. In previous literature surveys we have been looking for case studies of countries, which have similar culture and natural habitat to Hungary; primary surveys which gives WTP/hectare value (or we can calculate the WTP/hectare

value based on the aggregated value and the size of habitat). Our empirical survey was a contingent valuation survey. The WTP of inhabitants for a program aimed to reduce the consequences of extreme water phenomena thereby increase wetlands. We have three pilot areas, along the Tisza River, these are Nagykörű, Bereg and Homokhátság. The annual WTP is 8738 HUF/houshold.

**Table 2**

**Categories of the cost**

Cost (HUF/hectare)	Months												
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	Σ
Production													
Support													
Damage (flood)													
Wage													
Σ													

**Table 3**

**Categories of the revenue**

Revenue (HUF/hectare)	Months												
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	Σ
Production													
Other (Non-market)													
Σ													

Our challenge is to determine the non-market value of the habitats. The WTP of the collected studies were in different currencies and in different years, that's why we must homogenize all information. Values were transferred into current HUF, this means the previous WTP's have to be multiplied by both the inflation rates and by the purchasing power parity.

**A practice example in the case of wetlands**

Based on the results of international studies it can be said that out of many habitats the non-market value of a wetland is especially high (Oláb, 2002). Enlargement of flood-basin causes varied land use (grazing ground, forest, orchard, reeds etc.) and ecosystem services can be revived (flood prevention, replacement of ground water, waste water treatment, cultural services etc.).

Table 4 and Table 5 illustrate a practice example of our model in the case of wetlands.

**Table 4**

**The costs of wetlands**

Cost (1000HUF/ha)	Months												Σ
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	
Production	0	0	0	0	0	0	0	0	0	0	0	0	0
Support	0	0	0	0	0	0	0	0	0	0	0	0	0
Damage (flood)	0	0	0	0	0	0	0	0	0	0	0	0	0
Wage	0	0	0	0	0	0	0	0	0	0	0	0	0
Σ	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>

**Table 5**

**The revenues of wetland**

Revenue (1000HUF/ha)	Months												Σ
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	
Production	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (Non-market)	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	3114
Σ	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	<b>3114</b>

The costs of the creation of wetlands and the revenue of the production are negligible. In order to determine non-market benefit, in this example, we used *Constanza's* (1997) famous study, which determines annual dollar/hectare value for different habitats and ecosystem services. This value was transformed by inflation rates and with the purchasing power parity for annual HUF(2009)/hectare value. Taking Costanza as a basis the non-market value of wetlands is 3 114 000 HUF(2009)/year. At present we are mentioning only one study for illustration and for the final fulfilment of CBA we intend to work up wide range of international surveys. In the case of wetlands we have own survey, so we can compare our results to the international ones.

**CONCLUSION**

The primary goal of the study is to estimate the yearly value of ecosystem services per hectare of various habitats and include the resulting values in cost-benefit analysis of changes in the built and natural environment. The costs and market income were determined based on data while the non-market benefit was estimated. Out of the five habitats just in the case of wetlands, have we primary survey on non-market benefit which was calculated by contingent valuation. With other habitats we used for assessment the benefit transfer method. The BT method is obviously not as good as primary non-market valuation studies, however, they've been promoted as a usefool tool quantifying environmental benefits, when there is a limited budget and limited time.

We are still working on the study. The followings are still in progress:

- Collecting literature valuation survey,
- The transformation of previous WTP/hectare values transform for the present,
- In our survey WTP/household has to be transformed to WTP/hectare.

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## RESEARCH OF ECONOMIC BURDENS LINKED TO PHYSICAL INACTIVITY

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### ABSTRACT

*Interest in monitoring living standards has gradually risen in our country in recent years. The National Development Plan's main goal was to increase living standards for the domestic population in the period between 2004 and 2006. Unfortunately, it couldn't reach its goal, and the Hungarian indicators' scores fall at the end of European ranking list, according to the WHO report of May 2010. The result of Eurobarometer's representative case of 2010 is depressing, showing that 77% of the population is physically inactive. This paper's objective was to produce numerical data of the economic burdens in sick-pay, furthermore to measure the costs could be saved in sick-pay with a decrease in physical inactivity. We have used national and international studies, reports, and methodologies in our research. We have accessed sources in the database of the National Health Insurance Fund Administration, and created our own questionnaire (n=1158). Our conclusions indicate that it is the responsibility of the decision-makers to take action to decrease physical inactivity so as to spare drastic expenses every year.*

Keywords: physical inactivity, lifestyle, economic burdens, sick-pay allowances

### INTRODUCTION

The European Committee has worked out a 10 year long strategy named Europe 2020 in March 2010. Its main goal was to put the European economy into growing orbit. The strategy urged the policies of the member states and the Unions better to co-ordinate, to give dynamics to the „intelligent, sustainable and inclusive economic growth”. There were formulated a lot of key messages at the round table discussions of decision-makers, from which we would like to emphasize the following:

„The Europe 2020 Strategy shouldn't consider only GDP, but new indicators are needed, which measure the quality of life and sustainability of growing.”

Economic growth is the highest in the countries with higher quality of life, so its development decreases the poverty increasing the performance of the national economy. One of the key factor of the quality of life is the state of health. Barro (1997) thinks the population's state of health one of the most important indicators of economic growth. Subrnke *et al.* (2005a; 2005b; 2008) pointed out, that the increasing of life expectancy with one year induces a 4% economic growth based on Bloom's and Canning's results, so investing in health-development could advance sustainability. Nordhaus (2002) assessed the value of a saved year of life in 3 millions USD.

The interest in studying quality of life has increased in our country in the last years too, because main goal of the National Development Plan was the increasing of the Hungarian population's quality of life between 2004 and 2006. However this goal wasn't achieved, because the Hungarian indicators of health behaviour (smoking, alcohol consumption, physical inactivity) published by WHO are on the bottom of the European ranking list in May 2010.

The protective effects of physical activity and recreational exercises were by many domestic and international research supported (e.g. it has protective effect on chronic diseases, coronary and heart diseases, musculoskeletal diseases, type 2 diabetes and any kind of cancer) (Nocon et al., 2008). It contributes to the mental health through its antianxiety and mood improving affect. It is one of the most effective and cheapest tools of stress management (Balogh et al., 2008).

Cost-effectiveness studies support, that preventing diseases with physical activity is cheaper, than health improvement with medicines (Apor, 2010).

Physical inactivity is responsible about 600,000 deaths in the European Union and leads to loose 5.3 million healthy life years because of disability and decay of health (Edwards and Tsouros, 2006).

Many Hungarian and international researchers studied physical activity and inactivity (Weiss et al., 2000; Martin et al., 2001; Kaczmarczyk et al., 2000; Felderer et al., 2006; Chenoweth, 2005; BHF National Centre, 2007; Ackermann et al., 2008). The domestic studies witness about the evincible advantages of physical exercises.

All of them assert, that the decrease of physical inactivity results positive changes in the indicators of health, quality of life, well-being and economy. Gémes (2009) asserts in her study based on Hungarostudy 2002 research (n=12 634), that a physically inactive people (who absolutely don't do sports) was much more on sick-list, he was unable to perform his job and he was in hospital more recent (Table 1).

**Table 1**

**Comparison of Physically Active and Inactive Lifestyle from some Aspects**

Unable to Perform their Work because of Illness	Physically Inactive People	Physically Active People	$\chi^2$ -Statistics' Significance
0 day	70.40 %	75.00%	<0.01
1-14 days	9.50%	9.10%	
15-29 days	4.00%	3.80%	
30 or more days	16.10%	12.10%	
<b>How much time were you in hospital? (2001)</b>			
No time	79.20%	84.40%	<0.01
1-5 occasions	20.00%	15.00%	
6 or more occasions	0.80%	0.60%	
<b>How many days passed you in hospital? (2001)</b>			
No time	68.50%	75.10%	<0.01
1-14 days	19.80%	18.20%	
15-29 days	5.70%	2.80%	
30 or more days	6.30%	3.90%	

Source: Gémes, 2009

International researches present the savings through decreasing of physical inactivity widely. The *Table 2* shows the studies with similar methodology.

**Table 2**

**Benefits of Reducing Physical Inactivity in Different Countries**

<b>Land</b>	<b>Burdens of Physical Inactivity</b>	<b>Possible Benefits with Decreasing of Physical Inactivity</b>
Austria	N/A	254 millions EUR
Norway	980 EUR/person/year	N/A
Finland	N/A	1,200 EUR/person
Switzerland	1.76 billions EUR	1.76 billions EUR (direct costs) + 910 millions EUR (indirect costs)
United Kingdom	N/A	8.2 billions £
USA	21.6 billions USD	1.3 billions USD (with 5% decrease of physical inactivity)
Canada	2.1 billions CAD	150 millions CAD (with 10% decrease of physical inactivity)

Half millions early deaths are caused by physically inactive life style and obesity in the USA, which means minimum 100 billions USD health expenditures. (*Myers, 2008*)

Physical inactivity generated 24 billions USD losses in 1998, which was 2.4% of the health expenditures in that year (*Colditz, 1999*).

It is important to emphasize, that the measurement of the physical inactivity's economic burdens shows a great variance, so it is risky to do direct comparisons between lands, because other methodologies are used.

Estimations on total savings potential linked to physical inactivity were not made in Hungary.<sup>1</sup>

The in Hungary usually sounded sick-pay savings estimation based on a Hong-Kong study is absolutely not acceptable, because its basic figures are false. The reason is that the figure of sick-pay allowance – 31.5 billions forints – is an old figure (form the term 1996-1998) (*NHIFA, 2007*) However the decrease of physical inactivity makes it possible, savings to realize not only in sick-pay, but in other expenditures too, but this study didn't contain other calculations. It pointed only out, that the expenditures of health services (medicine, medical expenditures) would decrease, and a production-growth would be available in the national economy (days dropped out on workplaces, healthier society with higher production rate).

<sup>1</sup> The only one attempt was the paper of *Hécz* (2009), which studied the economic burden of illnesses linked to physical inactivity.

## MATERIAL AND METHODS

There were two main goals of this study:

- to compile a nomenclature, which could help to calculate all the economic burdens of physical inactivity in Hungary;
- to calculate the savings in sick-pay allowances in our country.

We would like to calculate all the affects, value, price of usual physical activity on indirect ways in Hungary. Our first searches proved, that the notion of usual physical activity is defined always differently. We had to define this notion very strictly at the summarizing of the extremely scarce statistics as a consequence of this problem.

Because of the colourful definitions of physical activity we could consider only the measure of physical inactivity as basic figures (this is usually equally interpreted), because this meant the sedentary lifestyle and the lack of physical activity needed to prevention.

We handled the dates of Eurobarometer<sup>2</sup> 2005 and 2010, the official dates of National Health Insurance Fund Administration (NHIFA) form 2010 and Hungarian Central Statistical Office (HCSO).

We have to accept the fact, that frequencies of some illnesses are higher at the physically inactive population than at physically active population, when we are talking about the economic burden of sedentary lifestyle. So sedentary lifestyle is a risk factor.

We have to make clear before calculations, what costs of illnesses for Hungarian society are. For the first step we would like to map and collect all the economic burdens of physical inactivity for the national economy. It can be seen at the list of the nomenclature, that the costs are coming from three different places. We can speak about costs of government, employers and employees. The national and international literature has differentiated the direct and indirect costs too. *Table 3* shows the economic burdens of illnesses in Hungary in 2005.

*Direct costs* are all the cost, which are linked to healing (in- and outpatient treatments' costs of illnesses, medicines, keeling aids' costs, sick-pay allowances). *Indirect costs* mean the costs of absenteeism, however resource sacrifice is not here, so it is perfect, if we are talking about *indirect burdens*. Indirect burdens are the decrease of outcomes due to absenteeism on the side of the employers and the decrease of earnings on the side of the individual. Direct costs are governmental and individual burdens, indirect burdens are the cost of employers and society. Disability and illness allowances are two and a half part of the unemployed allowances and these costs are growing further after an OECD report.

The definition of presenteeism has appeared in the last decade, it means, that the employee goes to work, however he or she is ill and is not able to do his or her job with full intensity. Presenteeism could have higher costs, then absenteeism after some papers made in the UK. Absenteeism is linked to health problems usually, the two most frequent reasons are the muscoskeletal and respiratory diseases, but backache and the syndrome of repetitive strain injuries are frequent too. The

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<sup>2</sup> Eurobarometer is a public opinion poll made by research firms in the member states of the European Union for the Committees for the EU twice a year. These polls have been published since 1973.



physical activity programs moderate the increase of health expenditures compared to the inactive persons at workplaces, in which the hospital treatments', heart diseases' and diabetes' expenditures decreased mostly (L<sub>u</sub>, 2008).

**Table 3**

**Cost of Illnesses in Hungary in 2005**

	<b>Economic Burdens of Illnesses in Hungary in 2005</b>	<b>Total Sum (million Ft)</b>	<b>Whose burden is it?</b>
<b>Direct costs</b>	Medicine	323,958	NHIFA
	Family doctor treatment	54,829	NHIFA
	Dental treatment	21,603	NHIFA
	Outpatient treatment	112,850	NHIFA
	CT, MRI altogether	11,256	NHIFA
	Artificial kidney treatment	16,879	NHIFA
	House nursing	2,966	NHIFA
	Inpatient treatment	396,696	NHIFA
	High value treatments	5,878	NHIFA
	Patient transport	6,241	NHIFA
	Spa	4,710	NHIFA
	Governmental health expenditures	315,980	NHIFA
	Sick-pay allowances	97,024	NHIFA
Disability pensions	242,900	CANPI	
<b>Private costs</b>	Out-of-pocket expenditures	789,950	Employee
	Expenditures of absenteeism	70,349	Employer
<b>Indirect burdens</b>	Friction costs of absenteeism	177,172	Employer
	Earnings reduction due to sick-pay	52,088	Employee
	Friction costs of disability	25,386	Society
	Presenteeism costs	18,729	Society
	<b>Total sum</b>	<b>2,747,444</b>	

CANPI: Central Administration of National Pension Insurance

Source: Based on Kollányi and Imecs, 2007

The economic burdens of illnesses were 2,747 billions forint – which was more than 12.5% of the GDP – in Hungary in 2005. We had to change the estimation of Kollányi and Imecs (2007) at the calculation of indirect burdens, because we found their assumptions detached from the reality.<sup>3</sup>

<sup>3</sup> Assumptions of Kollányi and Imecs (2007):

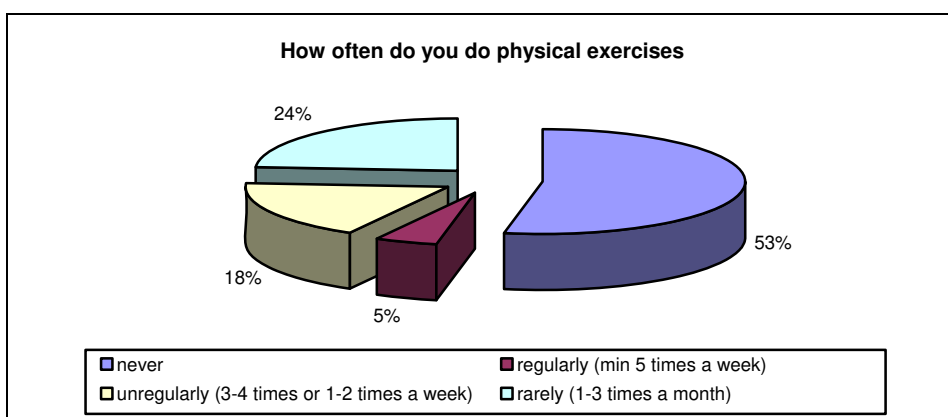
1. perfect market of goods, where the additionally produced goods will be absorbed;
2. imperfectly inflexible workforce market, where the dropped out workforce is not replaceable;
3. the basis of the loss is the gross average earnings per capita;
4. the employees work 365 days in a year;
5. the Hungarian employment structure is similar to the Dow Chemicals' headquarters in Michigan in 2002.

The good market and the workforce market of Hungary are supply dominated, the employees have to work 230 days usually yearly and it is much fairer, if we use GDP per capita as the basis of loss. We should disregard from the multiplicative affect of Dow Chemicals. The costs of illnesses were 273 billions forint regarding a 3 months long friction period<sup>4</sup> and taking into consideration the personal losses in 2005, which was more than 1.2% of the Hungarian GDP in that year.

The representative research linked to sport activities (*Eurobarometer*, 2005) showed, that 60% of Hungarian population was totally inactive in sport in 2005, however this rate was 53% with 7% fewer, than in 2009 (*Eurobarometer*, 2010) (*Figure 1*). The newest research is saddening, when we add the other category (1-3 times of doing sport) to the inactive category, because the rate decreases with this addition onto 77%. The reason of the addition is that these categories don't mean a protective affect on health.

**Figure 1**

**Prevalence of Physical Activity in Hungary (n=1024)**



Source: *Eurobarometer*, 2010

**RESULTS AND DISCUSSION**

For the first time we calculated the indirect burdens of illnesses for the years 2005 and 2009, to compare them (*Table 4*). Because the regular gross average earnings were the bases of the calculations, we had to eliminate the change of this factor between these two years. Because of this reason we used the real average earnings from 2005 on the basis of 2009 in both years. The difference between the two years was given by the structural changes – decrease of sick-days, decrease of disability pensioners under age limit – after this.

<sup>4</sup> It means, that the dropped out workforce can be replaced after 3 months (searching, selecting, training) by a new employee with similar performance. This assumption maybe overestimates the present situation.

Table 4

**Indirect Costs of Illnesses in Hungary in 2009 and 2005  
Based on Real Average Wages in 2005 (2009=100)**

Indirect burdens	Values with the Real Average Earnings from 2005 (2009=100) and with Structure from 2005	Values with the Real Average Earnings from 2005 (2009=100) and with Structure from 2009
Regular gross average earnings	176,691 Ft	176,691 Ft
Number of sick-days	37,385,000	32,800,000
Average earning for one day	5,809 Ft	5,809 Ft
GDP per capita for one day	11,758 Ft	11,758 Ft
Frictional costs of product deficiency because of illnesses	219,795 millions Ft	192,839 millions Ft
Number of disability pensioners under age limit	465,797	422,695
Frictional costs of product deficiency because of disability	31,493 millions Ft	28,579 millions Ft
Earnings reduction due to sick-pay	64,620 millions Ft	56,695 millions Ft
Costs of presenteesim	20,634 millions Ft	20,634 millions Ft
<b>Total sum of indirect burdens</b>	<b>336,542 millions Ft</b>	<b>298,747millions Ft</b>

As the result of the calculation of indirect burdens in these two years we have got, that a 37,795 millions Ft decrease has been calculated in real values (2009=100%).

There could be more reasons of this. One of them is the decrease of physical inactivity and the increase of physical activity. We remark again, that 60% of the Hungarian population never done sports in 2005 and 53% didn't do it in 2009 (*Eurobarometer* 2005; 2010).

The 7% decrease of physical activity maybe manifested itself in better health status and less absence at workplaces (the value of sick-days per capita decreased with almost 1 day<sup>5</sup>), which resulted the decrease of indirect burdens on real values. (37,795 millions Ft)

After the list of illnesses' burdens we wanted to sum the sick-pay allowances linked to physically inactive lifestyle. The savings of sick-pay allowances linked to sedentary lifestyle's reduction is calculable using the valid methodology of international researches.

The methodology is the PAR-method (Population Attributable Risk) and its versions in most of the researches.

$$PAR = \frac{P \times (RR - 1)}{1 + P \times (RR - 1)} \quad (1)$$

The *Summary Relative Risk* (RR) means the number of the recipients of sick-pay allowances in the physically inactive population. *Prevalence* (P) means the prevalence of physically inactive population in the full population.

<sup>5</sup> Exactly with 0.87 day.

We made a survey research to determine the Summary Relative Risk. We were unable to make a representative research among the Hungarian adult population due to lack of time and resources, but we think our results suitable to estimate tendencies, because these are based on large sample. We used the classical paper and pencil method (n=383) and the online data recording (n=775) to create the primer database. The database consists of 1,158 records covering all the country.

We used logistic regression to calculate the Summary Relative Risk of sick-pay allowances with SPSS17 for Windows. We wanted to know, what chance of physically active population had, to avoid sick-pay allowances in the year 2009. We found significant relationship between regular sport activities and sick-days ( $p=0.03$ ;  $\text{Exp}(\beta)=0.760$ ).

This means, that the chance of getting sick-pay allowances decreased to 0.76 among the physically active peoples, or the people with regular sport activities have 24% lower chances to get sick-pay allowances (95% EXP ( $\beta$ ) 0,59-0,97%), so this was our RR value.

After that we were able to calculate the PAR value (with a significance level of 95% for the lower and upper boundary and average value) used the frequency of physical inactivity published in *Eurobarometer* (2010). This value quantifies the affect of physical inactivity.

The results are shown in the *Table 5*.

**Table 5**

**Calculation of Sick-Pay and Days of Sick-Allowances  
Assuming 77% Physical Inactivity**

	Unit	PAR value		
		Lower boundary of RR	Average value of RR	Upper boundary of RR
PAR value of sick-pay allowances with the rate of 77% of physical inactivity	%	2.3	15.6	23.6
Number of sick-days linked to physical inactivity (total sum 32,800,000 days)	Days	754,400	5,116,800	7,724,400
Sick-pay allowances (total sum 102,842.2 billions Ft)	Millions Ft	2,365	16,044	24,220

This means, that 2.3%-23.55% of all the recipients of sick-pay allowances were physically inactive. 23.55% of all the cases are switchable to physical inactivity at a level of 77% physical inactivity among the full population in extreme fall.

After that we calculated the values of expenditures of sick-pay allowances used the dates of NHIFA (*Table 6*). The total sum of expenditures of sick-pay allowances were 102,843.2 millions Ft in 2009. When the rate of physical inactivity were not so high (77%), then 16 billions Ft could be saved with a hypothetical elimination of physical inactivity. The 10% decrease of physical inactivity could be a real aim of sport- and health politics in our opinion, which could mean a drastic saving in expenditures.

**Table 6**

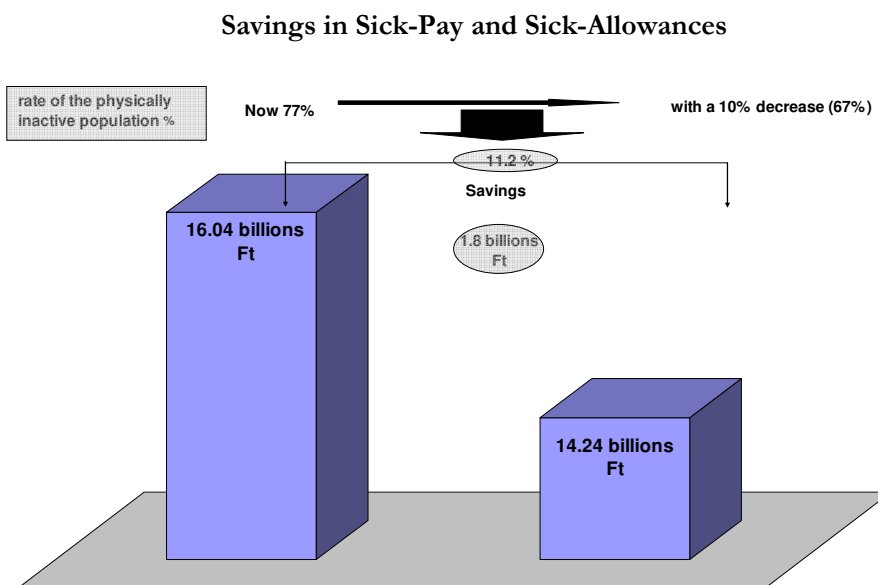
**Calculation of Sick-Pay and Days of Sick-Allowances  
Assuming 67% Physical Inactivity**

	Unit	PAR value		
		Lower boundary of RR	Average value of RR	Upper boundary of RR
PAR value of sick-pay allowances with the rate of 67% of physical inactivity	%	2	14	21
Number of sick-days linked to physical inactivity (total sum 32,800,000 days)	Days	646,290	4,543,625	6,932,492
Sick-pay allowances (total sum 102,842.2 billions Ft)	Millions Ft	2,026	14,246	21,737

The results show, that 14.25 billions Ft would be spared, if the rate of physical inactivity would be only 67%.

We subtracted the expenditures at the PAR value with rate 67% from the expenditures at the PAR value with 77%. This could mean hypothetically the savings potential linked to increase of physical activity at the NHIFA’s expenditures in sick-pay allowances (*Figure 2*).

**Figure 2**



That means, that 1.8 billions Ft could be saved with the 10% decrease of physical inactivity, which is 11.20% of all the expenditures in sick-pay allowances (the extreme values are 10.25% and 14.33%). On the other hand, it could mean a saving of 573,175 sick-days yearly.

After our calculation we can interpret, that sick-pay allowances are reducible with a significant measurement.

## CONCLUSIONS

We were able to show, how important role physical activity could play in national economy and how significant savings would be possible with its increase on the level of society and the people too.

Austria, Belgium, Denmark, Finland and Norway use every effort to develop the employees' health on the level of government and workplaces too. These countries worked out concrete laws and policies to handle this question. It is proved, that health development programs don't remain ineffective (*Report of European Foundation for Development of Health- and Work Conditions*, 2010).

Based on foreign studies the well-organized exercise intervention programs can function with a good efficiency in the struggle against bad health state caused by disadvantageous socioeconomically status (*Abernathy et al.*, 2002). These prevention sport activities could be successful introduced in the economical underdeveloped regions too (*Gémes*, 2008).

New targeted programs could be worked out using our results and recognizing the cheap and positive affects of physical activity on quality of life and health (*Ács et al.*, 2010).

An important goal of preventive health politics should be the stimulation of social groups, communities, regions with disadvantaged socioeconomically status. A foreign study found through studying the past century that development of population's health status is responsible for 30-40% of economic growth (*Arora*, 2001).

The health status of the population can be proved with the increase of physical activity, which increases the productivity and decreases the social expenditures linked to health status. Economic growth is stimulated by this process, which improves the country's competitiveness.

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## **OPPORTUNITY OR ECONOMIC PRESSURE? SITUATION ANALYSIS OF ENTERPRISES IN THE LAKE BALATON RESORT AREA**

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### ***ABSTRACT***

*The importance of the service sector in the Lake Balaton Resort Area is increasing, creating new alternative workplaces for local inhabitants. This affects mainly employees in the primary sector, because they can hardly have many other opportunities as long as local laws forbid the construction of industrial complexes. This study classifies the enterprises into branches and examines the concentration of retail trade and catering trade. It compares the results of two studies carried out in the area and outlines the situation of tourism-based ventures. In 2005 the Resort Area consisted of 164 settlements including 26,000 enterprises. The number of enterprises experienced a 10% increase during the summer season. In 2010 the data regarding the amount of settlements and enterprises changed; currently there are 179 settlements in the Resort Area of which 51 lie near Lake Balaton. We used queries in both studies with the co-operation of 300-300 ventures. We were interested in their geographical position, sectoral classification, and size class. We have to be familiar with the problems of the entrepreneurs and residents living in the area in order to be able to improve their quality of life. The questions concerned the following facts: the primary goals of the owners; whether the ventures are economically successful in their opinion; the components of their prosperity; if they overcome difficulties on their own or with help. The research shows that individual enterprises are often more successful than suppliers and demonstrates the effects that the previous year's investments has on their turnover.*

Keywords: Lake Balaton, tourism-based ventures, enterprises, success

### **MATERIALS AND METHODS**

The location of our empirical study might as well be an individual region from functional aspects, although it is not classified at NUTS level 2. The Lake Balaton Resort Area is made up of settlements from three counties, namely Somogy, Zala and Veszprém. In 2005 the Resort Area consisted of 164 settlements including 26.000 enterprises. The number of enterprises had a 10% increase during summer season. In 2010 the data regarding the amount of settlements and enterprises changed; currently there are 179 settlements in the Resort Area from which 51 lie near Lake Balaton. We used queries in both studies with the co-operation of 300-300 ventures. We were interested in their geographical position, sectoral classification and size class.

Authors created seven micro-regions on methodological basis, since the statistical regions do not cover the Resort Area completely. During the sample

selection process I took into consideration the number of enterprises and their distribution in the methodological regions.

Authors ranked the ventures according to their location (near Lake Balaton vs. far from it; city vs. village) to assure representativeness (Babbie, 2001).

When investigating the hypotheses, I ran a regression analysis on the collected data by using SPSS 16.0 software.

## RESULTS AND DISCUSSION

When we examine the data on economy and tourism in the Lake Balaton region, we realise that the level of development and welfare is increasing as we get closer to the lake. A research on the investment characteristics in the region (Vanicsek, 2000) suggested an advanced redistribution of revenues.

The present Government rejects to create a separate Balaton region, saying that it is too small, non-viable, the resident population is not large enough, and a NUTS level 2 region requires bigger economic and social unity.

Lake Balaton region does not have its own territory by law, consequently it is not entitled to receive financial resources. This area needs neither a classic regional development programme combining economic and social objectives, nor country planning with periodic plan output, but an integrated information system of locally attached regions and counties. It also demands the establishment of rehabilitation, training, retraining and advanced training centres organised by human resource management institutes, which are based on the cooperation between enterprises, local authorities and the Government serving the Transdanubian regions.

Having analysed the scientific literature connected to the topic I created a hypothesis for my empirical study and used both qualitative and quantitative inquiries to prove it. I applied baseline statistics and linear regression to explain the connections.

*Hypothesis: retail trade suppliers do not consider themselves more successful than individual enterprises.*

The observation justified that the examined suppliers that operate with low number of employees do not always find a vertical relationship with a large companies successful. The results show that enterprises that are also suppliers to different companies do not consider themselves more prosperous than individual ventures. The explanation might be that in this tourism-based area most enterprises are open during the summer season only. One possible solution is that they become suppliers to other companies, consequently get into a subordinate position but manage to be open all year through. Catering enterprises are in different situation; they still serve as meeting-places for the community even in settlements far from the lake, while near-shore ventures are usually open during the summer season. Some offer cultural programs, others specialise in health and wellness services thus become independent. There are no industrial complexes or corporate enterprises in the Lake Balaton Resort Area, since the so-called “Balaton-law” forbids their construction and operation. Retail trade enterprises with less than 9 employees commonly become suppliers and they get into a subordinate position.

As you can see in *Table 1*, further researches proved that supplier activity is less significant for catering ventures (as opposed to retail enterprises) to determine whether they are more successful in their field. In case of catering ventures, both the value on t-test and the sampling error of supplier activity coefficient are high, so the connection is rejected. Considering retail enterprises the sampling error is acceptable, but we have to emphasise: the value on coefficient of determination that indicates close connection is low with regard to catering enterprises.

**Table 1**

**Result table on linear regression, classified by branches regarding supplier activity and successfulness**

	<b>Retail enterprises</b>	<b>Catering enterprises</b>
Standard deviation	0.181	0.065
Coefficient of determination	0.700	0.004
Constant	6.326	6.083
Standard error of the constant	0.512	0.852
Supplier activity coefficient	-0.345	-0.151
Standard error of supplier activity coefficient	0.139	0.220
Result of Student's t-test using constant	12.366	7.142
Result of Student's t-test regarding supplier activity	-2.491	-0.685
Sampling error using constant	0.000	0.000
Sampling error regarding supplier activity	0.014	0.495

Retail enterprises have several possibilities to supply goods to multinational companies and commercial chain stores. 80% of retail ventures are open throughout the year, while 40% of enterprises in catering trade produce their income during the summer season and remain closed in winter. We inquired 186 retail enterprises and 114 catering ventures, which is a representative number of entrepreneurs in the Lake Balaton Resort Area.

Equation of linear regression regarding retail enterprises:

$$\text{Successfulness} = 6.326 + (-0.345 \times \text{supplier activity}) \quad (1)$$

Equation of linear regression regarding catering ventures:

$$\text{Successfulness} = 6.083 + (-0.151 \times \text{supplier activity}) \quad (2)$$

My thesis proves that retail enterprises with supplier activities are less successful than independent enterprises. It is explained by the fact that most ventures are not open throughout the year but during summer season only. Supplier activity means subordinate position which cannot be utilised by catering ventures completely. Catering establishments serve as meeting-places for the community; consequently they are open all year through regardless of where they are (near the Lake or far from it).

## CONCLUSIONS

Investments are hindered indirectly by the lack of appropriate institutional background, explicit coordination and cooperation between the institutions of economic development. In my opinion, it is important to determine the boundaries of Lake Balaton Resort Area and create a single administrative organisation. Lake Balaton has no “owner” for the moment, which raises difficulties for development and submission of tenders, since the lake does not belong to any region. However, all three adjacent regions claim resources to develop Lake Balaton, but this money is often spent on their own region.

Authors suggest the assistance of micro, small and medium-sized enterprises be carried out both on local and national level (e.g. tax allowances). There were attempts to “whiten” the economy (e.g. the application of temporary employment booklet), but it does not mean secure job for the employees. Large-scale business ventures are granted special tax benefits therefore they can offer cheap products and services around the clock, and retail enterprises cannot compete with them.

The improvement of region marketing for possible and actual visitors should be focussed on. Image development for Lake Balaton is carried out in the conventional way by using commercials and advertisements. What I find more important is that local entrepreneurs and inhabitants should change their attitude, which is a consensus between “sense and emotion”. They must realise – in order to be successful in tourism-related sectors - that guests will return if they meet a warm welcome, are dealt fairly and expected back with pleasure. Partly it means that entrepreneurs should not rig up prices during summer season to produce their annual income in a couple of months, and also should not sell their goods on different prices for local and foreigners. The customers must receive the quality they pay for.

Growing demands and state compensations (e.g. holiday voucher) increased the demand for guest-houses and hotels that offer comfort tourism and satisfy all needs in one place. Summer season could be lengthened by expanding the services in accommodations (e.g. sauna) even in settlements where there is no thermal spring therefore they are not visited in winter. In co-operation with a nearby restaurant they could offer half-board or full board accommodation for the guests thus complement and help one another. Developments of that purpose are profitable for “background settlements” as well, since not only they become well-attended but also it helps create workplaces and increase property prices.

On the other hand, we must be aware the fact that retail and catering ventures are allowed to improve only one part of the tourist suprastructure (accommodation; catering; supply) as private development, but it is not sufficient to attract tourists. The absence of the services mentioned above is discouraging, since they are considered to be basic expectations. In order to rise the residence time and number of tourists, we have to offer “complex adventure packages”, which requires cooperation between ventures of different type (Péter, 2010).

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## RURAL DEVELOPMENT POLICY AND ITS FUTURE IN EUROPE 2020 STRATEGY

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### **ABSTRACT**

*Rural development, broadly characterized as a process to enhance the quality of life of rural residents and the economic performance of rural areas, is predominantly supported at the EU level by the CAP – particularly its second Pillar – and the Cohesion Policy. The EU policy for supporting rural development beyond 2013 is currently a topic of debate amongst stakeholders and the European Commission. Europe has a growth deficit, and according to different points of view, the excessive supports should be cut, but the primary objectives of the CAP – namely, to provide the population with quality food, to guarantee food security, to meet environmental, public and animal health requirements, and to maintain rural communities – should be maintained. The EU will have to face the economic crisis and its threats, such as poverty, market loss, decreased production in the less favored areas and fight against environmental crisis. How can be these problems solved equally? How can the environment be maintained in line with the development of rural areas? How should it be financed? Several thoughts have arisen concerning the future of the CAP, from re-nationalization of the subsidies to the conversion of the two pillars of the CAP into three pillars; the debate is not yet finished. The significance of rural development is unquestionable; deliberate objectives and measures may solve the economic, environmental, social and global challenges. This paper wishes to compare former rural policies with visions for the future.*

Keywords: CAP, Europe 2020 Strategy, rural development

### **INTRODUCTION**

Europe 2020 is the EU's growth strategy for the next decade to meet the challenges of the global changes and to meet the needed levels of employment, productivity and social cohesion. The Strategy has set five key objectives on employment, innovation, education, social inclusion and climate and energy to be reached by 2020. The Member States shall adopt their own national targets in each of these areas.

The Common Agricultural Policy is the main document regarding of agricultural production and the farming communities, which has been confronted several changes due to global environmental, social and economic reasons. An extensive public debate was organised by the Commission in 2010, and the European Parliament has adopted a report on the CAP after 2013 which fits to the Europe 2020 Strategy. The objectives of the Europe 2020 Strategy and the future CAP have common features, as the agriculture is an integral part of the European economy

and society. The reform of the CAP should be continued, and the main objectives of the general objectives of the European Strategy shall be taken into consideration.

This paper wishes to examine the common related objectives of these two documents, particularly in terms of rural development.

## **MATERIALS AND METHODS**

The main purpose of this paper is to summarize the objectives and the connected measures of the two most important European documents for the future decade and to find the common features in the aspects of the rural areas and rural communities. The paper is mainly descriptive, a wide range of secondary sources were used including the international and Hungarian literature, EU policy documents, along with the detailed information of the rural development features of the former and the present programming period. The comparison of the Europe 2020 Strategy and the future CAP in rural development aspects is based on different EU and national documents and the information collected during the public debate.

## **RESULTS AND DISCUSSION**

### **Objectives of rural development and its role in the Common Agricultural Policy**

According to a standard definition, more than 91% of the territory of the EU is "rural", and this area is home to more than 56% of the EU's population. Rural development consists of different activities which final target is to help the rural areas to maintain the economic, ecologic and social functions in the society. It covers the local population and their living standards, their employment level, their income level and the local infrastructure. Additional rural development aspects are connected to cultural heritage and environmental sustainability. The rural development policy consists of three policies, namely income, environmental and social policies. The main objectives of rural development are to prevent rural out-migration, combating poverty, stimulating employment and equality of opportunity, and responding to growing requests for more quality, health, safety, personal development and leisure, and improving rural well-being (*The Cork Declaration*, 1996).

Rural development objectives may be divided as agricultural and non-agricultural objectives. The main objectives are summarized in *Table 1*.

The first Community rural development measures were implemented in the early 1970ies, on farm modernisation, measures to encourage the cessation of farming and on socio-economic guidance and occupational training for farmers. In 1975, a directive on mountain and hill farming and less-favoured areas was added. The first direct payments were connected to the supporting of LFAs. In 1985, these measures were replaced by measures in order to improve the efficiency of agricultural structures, by which measures were introduced to promote investment in agricultural holdings, installation of young farmers, forestation, land use planning and supporting less favoured areas (*Maácz*, 2001).

**Table 1**

**Agricultural and non-agricultural objectives of rural development**

<b>Rural development</b>	
<b>Agricultural objectives</b>	<b>Non-agricultural objectives</b>
<ul style="list-style-type: none"> <li>– improving efficiency of farming</li> <li>– supporting sustainable agriculture</li> <li>– prevention and maintenance of environment and landscape</li> <li>– diversification of agricultural production, alternative activities, services</li> <li>– afforestation</li> <li>– reducing negative environmental impacts of agricultural production</li> </ul>	<ul style="list-style-type: none"> <li>– village renewal and development</li> <li>– development of infrastructure</li> <li>– supporting the production regional and local products</li> <li>– development of alternative activities, tourism and manufacturing industry</li> <li>– development of the recreational use of rural areas</li> <li>– environmental protection</li> <li>– protection of the cultural heritage and traditions</li> </ul>

The 1992 reform of the Structural Funds introduced new measures such as the promotion of high quality products, the renovation and development of villages and the promotion and conservation of the rural heritage.

In 1997, the Buckwell report set out new ideas for the evolving of the CAP, in which rural development and environmental aspects would play a more important role. According to the Report, the CAP would be changed into CARPE, i.e. Common Agricultural and Rural Policy for Europe, which objective would be to ensure an economically efficient and environmentally sustainable agriculture and to stimulate the integrated development of the Union's rural areas (*Buckwell et al., 1997*).

The ideas of the Buckwell report were built into the Agenda 2000, in which the Rural Development Policy as the Second Pillar of the CAP was introduced. Thus, in addition to the market measures (First Pillar), rural development policy (Second Pillar) has become an essential component of the European agricultural model. The reform of 2003 has confirmed that rural development was one of the fundamental elements of the CAP.

The 2009 reform (Health Check) introduced five new measures into rural development policy: combating climate change, the development of renewable energies, water management, the protection of biodiversity, and the promotion of innovation and accompanying measures for the restructuring of the dairy sector.

For the financial programming period of 2007-2013 the following four new Axes were set out: Axis 1 for improving the competitiveness of the agricultural and forestry sectors, Axis 2 for improving the environment and countryside, Axis 3 for improving the quality of life in rural areas and encouraging diversification of the rural economy and Axis 4, (LEADER) for building local capacity for employment and diversification.



### **Reforming the CAP – CAP 2020**

Since its creation, the CAP has always been adapted to respond to the challenges of its time, as a result of different internal and external reasons. The main objectives of the CAP has changed through its historical development from increasing productivity (from the early years till 1992) through improving competitiveness (since 1992) to improving sustainability (from Agenda 2000) (*Jambor-Harvey*, 2010).

Significant reforms have been made in the past decade, namely the CAP reform in 2003 and the Health Check in 2008, to modernise the sector and make it more market-oriented. Several points of view have been arisen in order to meet the challenges of the present days. There have been opinions about a CAP with three pillars: Food Market Pillar, which concerns the marketing and economic objectives and measures; the Rural Development Pillar which is connected to the development of rural areas and rural society; and, finally the Environmental Pillar, which would contain environmental measures e.g. climate change challenges.

In April 2010, the Commissioner for Agriculture and Rural Development Dacian Cioloș, invited all EU citizens and organisations to join the debate on the future of the CAP, its principles and objectives. The debate centred around four main questions: Why do we need a common agricultural policy? What do citizens expect from agriculture? Why reform the CAP? What tools do we need for the CAP of tomorrow? The extensive public debate, where 5600 contributions were received, concluded with a conference in July (*EC*, 2010c).

In the course of these discussions, the majority of views expressed that the future CAP should remain a strong common policy structured around its *two pillars*. The First Pillar should be greener and equitably distributed and the Second pillar should focus on competitiveness, innovation, climate change and the environment.

The three strategic aims of the future CAP should be to preserve the food production potential on a sustainable basis throughout the EU, so as to guarantee long-term *food security* for European citizens and to contribute to growing world food demand, to support farming communities that provide the European citizens with *quality, value and diversity of food produced sustainably*, in line with our environmental, water, animal health and welfare, plant health and public health requirements, and to maintain viable *rural communities*, for whom farming is an important economic activity creating *local employment*.

The most of the contributions identified *three principal challenges* so as they became the future objectives of the CAP:

- *Viable food production*: to contribute to farm incomes, to improve competitiveness of the agricultural sector, to enhance its share in the food chain, and to compensate production difficulties in disadvantageous areas, and to provide with safe and sufficient food supplies;
- *Sustainable management of natural resources and climate action*: to guarantee sustainable production practices and secure the enhanced provision of environmental public goods, to foster green growth through innovation which requires adopting new technologies, developing new products, changing production processes and to adapt actions to respond the challenges caused by the climate change;

- *Territorial balance and diversity of rural areas*, to improve the rural economy and promote diversification to enable local actors to unlock their potential and to optimize the use of additional local resources, to allow for structural diversity in the farming systems, improve the conditions for small farms and develop local markets, thus agriculture remains a major economic and social driving force in rural areas, and an important factor in maintaining a living countryside (EC, 2010b).

The main instruments of the CAP (direct payments, market measures and rural development) will remain, but they should be used in a more efficient way so as to respond the three main objectives.

The formation of the Europe 2020 strategy offered a new perspective for the CAP; as through its response to the new economic, social, environmental, climate-related and technological challenges facing our society, the CAP may contribute more to the development of the smart, sustainable and inclusive growth.

### **Europe 2020**

The Europe 2020 Strategy tries to assess the weaknesses of the previous strategy and presents a range of integrated policy reforms to be implemented in the next years in order to accelerate economic recovery and job creation, which implementation do not require large public investments and have the greatest impact on growth and job creation

The Europe 2020 Strategy sets *five headline targets* which may have increasing importance in the present days and in the next future. These objectives are the following:

- *Employment*: increasing employment of the 20–64 year old population to 75%, through, among others, higher employment of youth, the elderly, the low-qualified, and through the increased integration of legal migrants;
- *R&D and innovation activities*: improving the conditions for research and development in such a way that private and public investment together reach a total of 3% of the GDP ;
- *Climate action and energy policy*: reduction of greenhouse gas emission by 20 per cent compared to 1990, increasing the rate of renewable energies to 20 per cent in the whole of energy consumption, and increasing energy efficiency by 20 per cent;
- *Education and training*: improving the level of education, with special efforts made to reduce school drop-out rate to 10 per cent, while at the same time increasing the rate of 30-34 year olds completing higher education, to a level of 40%;
- *Social exclusion and fight against poverty*: promoting social inclusion, above all by reducing poverty and by eliminating the risk of exclusion for at least 20 million people.

For the fulfilment of these goals, Europe 2020 Strategy puts forward *three priorities* which determine the exact way to reach the main objectives. The measures to be planned at national level shall be connected to these priority themes.

- *Smart growth*: developing an economy based on knowledge and innovation by encouraging people to learn, study and update their skills, creating new products and services that generate growth and jobs and to use information and communication technologies;

- *Sustainable growth*: promoting a more resource efficient, greener and more competitive economy, improving the business environment;
- *Inclusive growth*: developing a high-employment economy delivering social and territorial cohesion (EC, 2010a).

The full range of the present EU policies and instruments must be used more effectively to achieve the Europe 2020 objectives. These are, in brief, deepening the single market by improving and supporting entrepreneurship and to support marketing of products and services made in the EU, to use the financial support of the present EU funds (ERDF, ERF and Cohesion Fund) and to use external policy tools to make real partnerships with other non-EU countries.

In addition to these existing EU instruments, the Commission has presented the following *seven flagship initiatives* to catalyse progress under each priority theme:

1. *Innovation Union* to improve financing of research and innovation;
2. *Youth on the Move* to enhance the performance of education systems;
3. *A digital agenda for Europe* to reap the benefits of a digital single market;
4. *Resource efficient Europe* for sustainable economic growth;
5. *An industrial policy for the globalization era* to improve the business environment, especially for SMEs;
6. *An agenda for new skills and jobs* to modernise labour markets;
7. *European platform against poverty* to ensure social and territorial cohesion (EC, 2010a).

The main objectives of the seven flagship initiatives according to the three priorities are detailed in *Table 2*.

In autumn of 2010, Member States – in close co-operation with the Commission – worked on setting national targets and on developing strategies for their implementation. The a draft version of their National Reform Programmes should have been presented by mid November, indicating their envisaged national targets and the necessary reforms to reach these targets and remove long-standing barriers to growth. The fact that each Member State sets its own level of ambitions as regards the overall Europe 2020 targets is an important element of this strategy, ensuring that national targets are subject to an internal political debate (EC, 2011).

The national targets of Hungary are detailed in the National Reform Programme of Hungary, which draft version was developed after a public consultation and it was sent to Brussels in November 2010. The final version of the National Reform Programme of Hungary that is based on the Széll Kálmán Plan of the Government was released in April 2011.

The 5 strategic targets cannot be separated from rural development activities either they are agricultural or non-agricultural objectives. Considering the social features the population of the rural areas have low level of employment, the educational level is rather poor, the society is over ageing and the poverty is relatively high in these areas. These aspects may be connected to the following strategic targets: *Employment, Education & Training* and *Social exclusion & Fight against poverty*. The *R&D and Innovation activities* should be forced in the fields of agricultural production, new technologies, in environmental and energy aspects, using renewable energy sources in particular. Innovation and overall development is needed for improving competitiveness of the business sector. Sustainable and

ecological agriculture and food production, bio fuel production, afforestation, the reduction of GHG emissions are such activities which may be connected to the strategic objective of *Climate action & Energy policy*.

**Table 2**

**Europe 2020 Priorities and Flagship Initiatives**

<b>HEADLINE TARGETS</b>		
↑↑↑↑↑↑		
<b>Smart growth</b>	<b>Sustainable growth</b>	<b>Inclusive growth</b>
<p><b><i>Innovation</i></b>  <i>"Innovation Union"</i>                      improves framework conditions and access to finance for R&amp;D and innovation so as innovative ideas can be turned into products and services that create growth and jobs</p>	<p><b><i>Climate, energy, mobility</i></b>  <i>"Resource efficient Europe"</i>                      helps decouple economic growth from the use of resources, support the shift towards a low carbon economy, increase the use of renewable energy sources, modernise our transport sector and promote energy efficiency</p>	<p><b><i>Employment and skills</i></b>  <i>"An agenda for new skills and jobs"</i>                      supports modernisation of labour markets and empower people by developing their skills throughout the lifecycle with a view to increase labour participation and better match labour supply and demand, including through labour mobility</p>
<p><b><i>Education</i></b>  <i>"Youth on the move"</i>                      enhances the performance of education systems and facilitates the entry of young people to the labour market</p>	<p><b><i>Competitiveness</i></b>  <i>"An industrial policy for the globalisation era"</i>                      improves the business environment, notably for SMEs, and to support the development of a strong and sustainable industrial base able to compete globally</p>	<p><b><i>Fight against poverty</i></b>  <i>"European platform against poverty"</i>                      ensures social and territorial cohesion such that the benefits of growth and jobs are widely shared and people experiencing poverty and social exclusion are enabled to live in dignity and take an active part in society</p>
<p><b><i>Digital society</i></b>  <i>"A digital agenda for Europe"</i>                      that speeds up the use of high-speed internet and helps the e-administration for households and firms</p>		

Source: Using the information of Annex 1 of EC, 2010

**CONCLUSIONS**

Europe 2020 is a key European document which outlines the future of the European Union in economic, social and political aspects. The headline targets of this Strategy are in close connection with other strategic documents. The Common Agricultural Policy is one of the most important EU policies which determines the objectives of the European agriculture and the rural communities.

Examining the different literature sources and EU documents it can be stated that the reformed CAP may contribute to all of the priorities of Europe 2020 Strategy. Strengthening the R&D activities in the agriculture and using innovative technologies in food production may contribute to *smart growth*. *Sustainable growth* may be reached by those environmental issues which are determined by the CAP, as the European agricultural model takes both competitiveness and environmental issues into consideration. The efficient management of resources and the production of public goods are drawn up in the CAP and also contribute to sustainable growth. *Inclusive growth* is a crucial question in aspects of the population of the rural areas. These areas have a remarkable and irreplaceable contribution to jobs, but the uncertain income, the ageing population of the rural areas, the lack of new jobs that may be attractive for young people will not contribute to inclusive growth. This problem could not be solved without supporting rural areas.

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## THE ROLE OF THE RURAL CREDIT GUARANTEE FOUNDATION (AVHGA) IN SUSTAINABLE RURAL DEVELOPMENT

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### **ABSTRACT**

*The Rural Credit Guarantee Foundation (AVHGA) plays an important role in rural development by issuing credit guarantees for small- and medium-sized (SMEs) rural enterprises. AVHGA was founded in 1991 and has since issued more than 30,000 credit guarantees connected to more than 550 billion HUF credit. The aim of credit guarantees is to increase the creditworthiness of SME's, to improve their access to finance, and to ensure their financial viability. A credit guarantee is a type of credit collateral, in the legal form of an on-demand guarantee. With such a guarantee creditable enterprises can get financing from banks, even though they do not have enough collateral to cover the credit. In case of a bankrupted credit, AVHGA pays a certain percent (the maximum guarantee coverage is 80%) of the loss to the credit institution immediately. This makes credit guarantees one of the most efficient forms of state subsidy, because effective monetary payment occurs only in the case of defaulted loans. In this study we describe the activity of AVHGA and provide detailed analysis of data by rural development areas, financial products, and borrowers' experiences.*

Keywords: Rural Credit Guarantee Foundation, credit guarantee

### **INTRODUCTION**

Regional development is one of the core issues in Hungary nowadays, because the high proportion of agricultural production of the total GDP is not sustainable anymore. Therefore a number of Hungarian farmers have to finish its work or other rural inhabitants should diversify their activity as well to other related businesses in order to ensure or enhance their cost of living. In this study we examined the contribution of the Rural Credit Guarantee Foundation (AVHGA) in the access to finance of rural enterprises through regional breakdowns.

#### **The activity of AVHGA**

“Over one and a half centuries ago, Count István Széchenyi saw the absence of lending as the greatest obstacle preventing Hungarian enterprises from growing as fast as their Western peers. The situation is largely similar today. Even though the political changes brought about greater opportunities, the scarcity of capital remained the most serious problem facing small and medium-sized enterprises, especially in rural areas, in agriculture and the related sectors, unable to provide

enough collateral to borrow from banks. Having recognized the situation, the developed part of Western Europe tried to offer help by establishing the Rural Credit Guarantee Foundation under the PHARE Programme in 1991. It was the first credit guarantee institution in Hungary, improving the access of Hungarian rural enterprises to lending.

The mission of the Rural Credit Guarantee Foundation is to increase the creditworthiness of rural small and medium-sized enterprises: improve their access to financing and ensure their financial viability by issuing guarantees” (*www.avhga.hu*, 2011).

The Rural Credit Guarantee Foundation (*AVHGA*) issues credit guarantee for all regions in Hungary, and have been provided guarantee for more than 30 000 cases of more than 550 billion HUF credit amount from the start of its operation until the end of year 2010.

The guarantee provided by AVHGA is considered as state aid, due to the 70% state counter guarantee; therefore it has to apply all EU state aid rules. Since in case of guarantees payment is made only at the time of default, not the whole amount of the guarantee is counted as an aid. Based on the EU competition rules the aid element of the guarantee is the difference between the annually discounted market price and the effectively paid guarantee fee.

## **MATERIALS AND METHODS**

The examination based on the statistical data of AVHGA and the regional GDP data and regional GDP/capita index (total country=100) of Hungary issued by the Hungarian Central Statistic Office in the year of 2008. During the analysis we assume, that the GDP/capita index shows the degree of development by regions. We used only data of 2008, because the previously examination of data before 2008 showed not significantly different breakdowns by regions neither in AVHGA guarantee aid element and redemption amounts, nor in GDP data. Therefore the examination of one year can be considered significant. The territory of Hungary was divided into seven regions in 1999.

By applying a bubble chart for the regional breakdown of issued guarantee aid element amount and deemed amount/GDP/capita index we can divide four segments, and can analyze the data by groups.

## **RESULTS**

The Deed of Foundation of AVHGA prescribes, that the target group of credit guarantee is those rural SMEs that have not enough collateral to obtain external finance, but are creditable. As it is mentioned before we use the regional GDP as the indicator for regional development. During the examination we assume that in less developed regions the available collateral amount is less as well. If we correlate the regional guarantee aid element amount to regional GDP we can see how efficient the guarantee in the certain region was (*Figure 1*).

Figure 1

Seven regions of Hungary



Source: <http://hu.wikipedia.org>, 2011

In order to present all the three dimensions in one diagram, we can create the following four quadrants bubble chart. On the X axis is the guarantee aid element/GDP data, on the Y axis is the regional GDP/capita index. The size of the bubbles shows the issued guarantee aid element amount in the certain region. The intersection of the two axis is at the average of data (Figure 2).

Using the Figure 2 chart we can divide the data into four segments. In quadrate I. there are the relatively developed regions with relatively low aid element amount of guarantees. In quadrate II. would be the place of developed regions with high aid element amount of guarantees. In quadrate III. we can see the less developed region with low guarantee aid element, and quadrate IV. shows the less developed regions with more guarantees both by the aid element amount and the percentage of the GDP.

First of all if we consider the fundamental goal of AVHGA, namely the support of less developed areas, the diagram verifies it, because three of the less developed regions dispose with more guarantee aid element. On the other hand the most developed region (Közép-Magyarország) has significantly the fewer guarantees, which also complies with the Deed of Foundation.

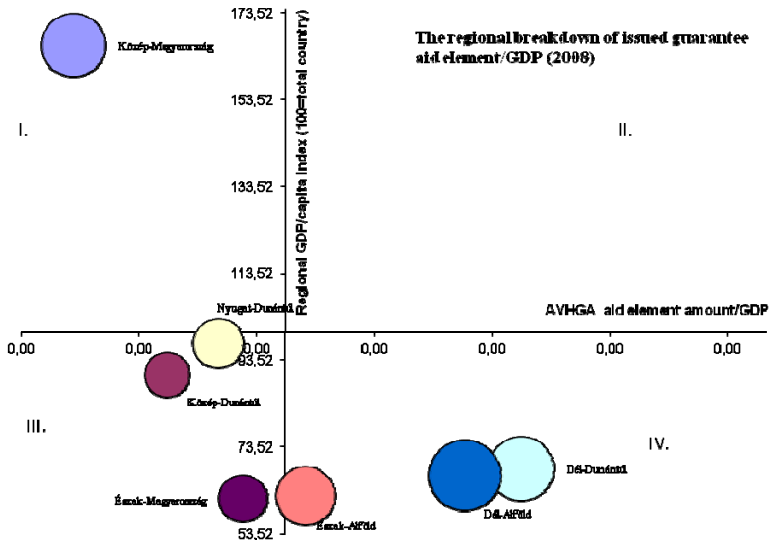
One region (Nyugat-Dunántúl) has fewer aid elements, but is relatively developed based on the GDP data. In this case we have the information, that these rural enterprises have enough capital for their activity, therefore the credit and guarantee demand is not so high.

The two areas that would be more subsidized by AVHGA are Észak-Magyarország and Közép-Dunántúl, because there is not too much guarantee aid element although they are relatively less developed (Figure 3).



Figure 2

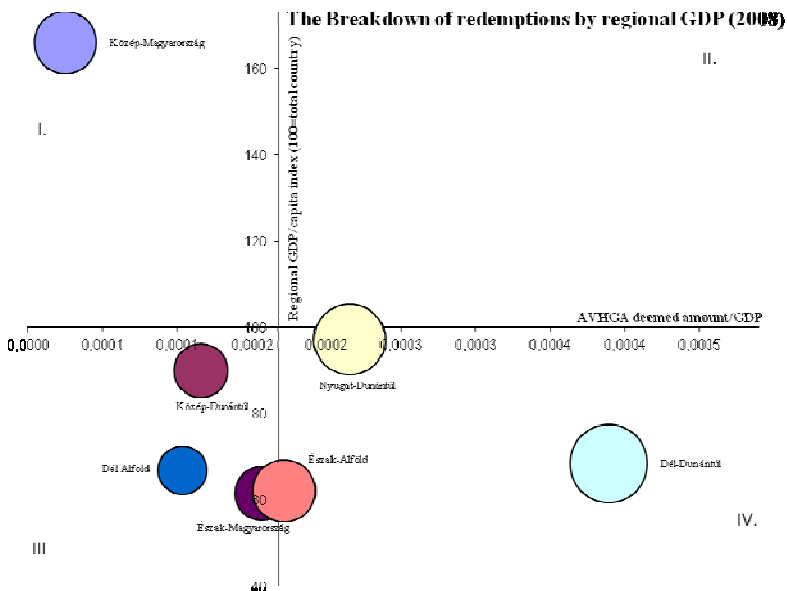
The regional breakdown of issued guarantee aid element/ GDP (2008)



Source: Based on Hungarian Central Statistical Office, 2011; AVHGA data, 2008

Figure 3

The breakdown of redemptions by regional GDP (2008)



Source: Based on Hungarian Central Statistical Office, 2011; AVHGA data, 2008

Comparing the redemption bubbles to the previous chart by issued guarantee amount one can observe, that two regions (Közép-Magyarország, Közép-Dunántúl) has not moved from the original place. It means that the proportion of deemed amount equals to the proportion of guarantee aid element amount. Two regions (Nyugat-Dunántúl, Észak-Magyarország) moved to the right side, in these cases the redemption was relatively higher than the average. It is interesting, that in the less developed regions (Észak-Alföld, Dél-Alföld, Dél-Dunántúl) moved to the left side only, meaning that in these areas the guarantee was really efficient, because despite of the high level guarantee aid element percentage the redemption amount is relatively low.

## **CONCLUSIONS**

Based on the fundamental goals of AVHGA, the data show the verification of the higher subsidization of less developed regions. The significantly low percentage of Közép-Magyarország also fulfils the main requirement that the most developed area is not promoted too much. There are possibilities in two regions for more guarantees: Észak-Magyarország and Közép-Dunántúl.

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## LOOKING BEYOND THE TRADITIONAL CONCEPT OF ECONOMIC GROWTH: ALTERNATIVE MEANINGS AND MEASURES OF NATIONS' ECONOMIC AND SOCIAL PROGRESS

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### **ABSTRACT**

*This paper gives some arguments for the need to redefine economic progress or to shift beyond Gross Domestic Product (GDP) as an indicator of economic growth and development of nations. The novel alternative measures of progress and well-being (e.g. Human Development Index, Legatum Prosperity Index, Genuine Progress Indicator, Measure of Domestic Progress, Green Gross Domestic Product, Index of Sustainable Economic Welfare, Gross National Happiness Index, Happy Planet Index, Environmental Performance Index) are presented and discussed. As opposed to GDP, which emphasizes economic quantity only, such new indicators evaluate what truly matters to people (i.e. the quality of life) and what matters to the planet (i.e. resource depletion). They also promote sustainable development. The study provides some empirical illustrations of the selected measures using international data drawn from the literature and statistical databases (e.g. World Database of Happiness, The new economics foundation's database, the UNDP HDI database, Yale University and Columbia University and Legatum Institute). The paper concludes, among other things, that economists generally agree: the way economic and social progress is measured should evolve over time. However, there is lack of consensus on whether the GDP-based system should be improved upon, replaced by other approaches, or complemented by other indicators. When considering various indexes on economic well-being, numerous methodological and political issues could be addressed.*

Keywords: economic growth and development, nation well-being, happiness economics

### **INTRODUCTION**

*"If policy-makers are to make well-being a central objective they have to have ways of measuring it".*

Lord Richard Layard (cited in Michaelson *et al.*, 2009).

Assessing a country's economic and social progress is an easier said than done task and has attracted a lot of attention in the recent years. For more than a half-century, the most commonly accepted measure of a country's overall performance and economic progress has been its economic growth as measured by changes in real output or Gross Domestic Product – GDP (Costanza *et al.*, 2009).

In this paper, the analysis is focused on the novel alternative measures of progress, wealth and well-being of the nations. The purpose is first, to present those measures, and then to evaluate selected European countries with respect to

each measure for which data are available as well as to assess the correlation between those measures.

The rest of this paper is organized as follows. In the next section, the description of materials and methods is provided. Then, brief summary of insights from the literature focusing particularly on GDP and other indicators is presented. Some alternative measures are defined and their sources are introduced. After that, the results of cross-country empirical analysis (with respect to each individual measure of economic and/or human progress) are presented and discussed. The last section provides some concluding remarks.

## **MATERIALS AND METHODS**

The basic data used here are indicators drawn from the relevant literature and statistical databases such as the World Development Indicators (World Bank), the Human Development Index (United Nations Development Programme – UNDP), National Accounts of Well-being and the Happy Planet Index 2.0 (The new economics foundation) and the Legatum Prosperity Index (Legatum Institute).

The empirical analysis generally focuses on European region and covers 22 countries: Austria, Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine and United Kingdom. National comparisons among that group in relation to association (correlation) between selected indicators at a given time were shown by plotting the pairs of indexes on the same graph. Additionally the Pearson coefficients of correlations were found, which are shown by fitting line in the scatter plots.

## **MEASURES OF ECONOMIC AND HUMAN PROGRESS**

Looking historically at state's goals for achievement, 19th century governments measured their success by their military prowess while 20th century governments by GDP growth.

The problems involved in applying GDP as a measure of well-being and economic welfare as well as the drawbacks of macro-economic policies purported to stimulate economic growth have long been recognized by economists and other social scientists, and resulted in the development and promotion of alternative measures for policy making. Consequently, 21<sup>st</sup> century governments started to measure their success by progress in well-being and human flourishing or happiness (gr. *eudaimonia*)<sup>1</sup>.

### **Critique of the GDP and economic growth paradigm**

If by (economic) growth we mean the expansion of output of goods and services, then economic index we call GDP, or rather real GDP which measures growth in

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<sup>1</sup> The roots of this concept are in ancient Greek philosophy. For Aristotle (384-322 B.C.), *eudaimonia* (happiness, human flourishing) is one of the two purposes of the individual human action of using wealth (i.e. economic action). Another purpose is to use things that are necessary for life (i.e., survival).

terms of monetary units adjusted for inflation, is perfectly satisfactory. GDP has been constructed for this purpose. It was the Nobel Memorial Prize in Economics winner (in 1971) *Simon Kuznets* who firstly proposed original model of national economic accounts presented in his research paper in 1934 (*Kuznets*, 1934) and in a report to the US Congress in 1937. In 1942, annual estimates of US Gross National Product were introduced to complement the estimates of National Income and to facilitate war time planning. *Wassily Leontief* (winner of the 1973 Nobel Prize in Economics) during the mid-1940s acted as a consultant for the US Bureau of Labor Statistics and developed input-output accounts that subsequently became an integral part of the National Income and Product Accounts (NIPA). Not long after the Second World War the use of input-output analysis began to gain an institutional presence throughout the world (*King*, 2011).

According to *Samuelson and Nordhaus* (2005), “While the GDP and the rest of the national income accounts may seem to be arcane concepts, they are truly among the great inventions of the twentieth century”.

Many economists, however, follow Kuznets who cautioned against equating GDP growth with economic or social well-being (*Costanza et al.*, 2009). GDP is a measure of economic activity (performance) and provides us with a general idea of how much an economy produces, not necessarily how well off we are.

According to *Oswald* (1997), “*Economic performance is not intrinsically interesting. No-one is concerned in a genuine sense about the level of gross national product last year or about next year’s exchange rate. People have no innate interest in the money supply, inflation, growth, inequality, unemployment, and the rest (...) Economic things matter only in so far as they make people happier*”.

There are methodological problems with GDP; for instance natural disasters, resource depletion, crime and military conflicts are treated as economically beneficial while non-monetized or unpaid activities (e.g. parent-child interactions, the products of peasant agriculture) are ignored or poorly estimated. GDP seems to fail to measure key aspects of quality of life; moreover it encourages activities that are counter to long-run well-being of the community as a whole.

Economic growth as measured by GDP change is most likely necessary but not sufficient to ensure that all members of society benefit from it, to improve human well-being and reduce poverty for groups marginalized from society, to promote human development, to induce environmental improvement or generally to ensure the prosperity of a nation.

In 1974, Richard Easterlin published a study in which he argued that economic growth did not necessarily lead to more satisfaction (happiness). So-called the *Easterlin Paradox* – key concept in economics of happiness – suggests that average levels of well-being increase up to middle income levels and then rapidly level off. People in less developed countries did become happier once they could afford basic necessities, but beyond that, further gains simply seemed to reset the bar (*Leonhardt*, 2008).

Nevertheless, a question arises as to whether there exists a possibility to find ways to increase welfare and well-being (progress) without automatically increasing the GDP, i.e. without economic growth. In a certain basic sense the distinction between growth and progress is the *difference between “more” and “better”* (*Ayres*, 1996, 118. p).

Often the growth skeptics (e.g. *De Graaf et al.*, 2001; *Easterbrook*, 2003) argue that the developed world, obsessed with economic growth at any cost, is suffering from *affluenza* or luxury fever; that causes damage to our health, our families, our communities, and our environment<sup>2</sup>.

In 2007 the UK Conservative Party's Quality of Life Policy Group noted that "*in wealthy countries, a continuing increase in economic growth is not increasing wellbeing*" and promoted the development of a more reliable indicator of progress than GDP (*Michaelson et al.*, 2009).

Considering welfare, we should take into account not merely final goods and services produced within country or total expenditure but also address the questions of taxes, transfer programs, subsidies, health care reform, regulation, environmental policy, education reforms, social security system, equity, indebtedness etc. (*Ayres*, 1996; *Slesnick*, 1998). Several economists, including myself, would probably agree with a French representative of the physiocratic school – Victor de Riqueti, known as the *Marquis de Mirabeau* who said: "*You who look only for money without taking notice of where it goes or where it comes from, you are the true ministers of chaos*" (quoted in *Kwass*, 2004, 196. p.).

To go beyond GDP framework requires normative judgments concerning the measurability and comparability of welfare across heterogeneous agents as well as an aggregation of welfare micro-level results to social outcomes. Economists have been increasingly willing to apply subjective well-being indicators to address economic and public policy issues that involve non-marketed goods or inconsistent preferences.

### **Alternative measures of well-being, economic welfare and sustainability**

From the review of the literature it appears that *well-being* is a multi-dimensional phenomenon that is much broader than its narrow economic dimension. It includes both non-monetized aspects of economy and important non-economic aspects, such as personal relationships, health conditions as well as governance and environmental issues.

Several researchers and institutes have proposed alternatives that try to adjust or supplement GDP or go far beyond GDP. Distinction between concepts of economic welfare, well-being and sustainability as well as their widely used indicators are shown in *Table 1*.

Yale economists *Nordhaus and Tobin* (1972) invented the *Measure of Economic Welfare* (MEW)<sup>3</sup> as an alternative to GDP in order to better recognize the relationship between economic growth and welfare. The MEW adjusted GDP to include an assessment of the value of leisure time and the amount of unpaid work in an economy (increase in the welfare value of GDP) as well as the value of the environmental degradation caused by consumption and industrial production (reduction in the welfare value of GDP). The MEW is regarded as the precursor of later indicators of sustainable development.

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<sup>2</sup> Word *affluenza* is derived from the word affluence, meaning: (a) an abundant flow or supply - profusion; (b) abundance of property – wealth (Merriam-Webster Dictionary).

<sup>3</sup> Nordhaus and Tobin calculated the MEW for the years from 1929 to 1965 in the USA.

**Table 1**

**The notions and indicators of well-being, economic welfare and sustainability**

<b>Economic welfare</b>	<b>Well-being (human welfare)</b>	<b>Sustainability</b>
Faring well, prosperity (wealth) Economic well being of an individual, group, or economy	Living and faring well Objective: external, e.g. basic needs Subjective: happiness	Continuation at the same pace or capability of lasting indefinitely
Measures capture the contribution of a nation's economy to the overall level of well-being enjoyed by its citizens	Measures aim to comprehensively evaluate either a single person's life situation or the life situation of a group of people	Measures investigate whether the current levels of well-being and economic welfare can be sustained into the future
<b>Indicators</b>		
GDP Net Domestic Product Measure of Economic Welfare ( <i>Nordhaus and Tobin, 1972</i> ) Index of Sustainable Economic Welfare ( <i>Daly and Cobb, 1989</i> ). Genuine Progress Indicator ( <i>Cobb et al., 1995</i> and <i>Redefining Progress</i> ) Measure of Domestic Progress (new economics foundation) Index of Economic Well-being (Centre for the Study of Living Standards)	GDP Fulfillment of Hierarchical Needs Index ( <i>Clarke, 2005</i> ) Human Development Index (UNDP) Happiness/Life Satisfaction (World Happiness Database, Eurobarometer) Happy Planet Index (new economics foundation) National Accounts of Well-being (new economics foundation) Subjective well-being (OECD, the EU) Legatum Prosperity Index (Legatum Institute)	Sustainable Development Indicators (UN Commission for Sustainable Development) Ecological Footprint ( <i>Wackernagel and Rees, 1996</i> ; Global Footprint Network) Environmental Sustainability Index (University of Columbia and University of Yale) Happy Planet Index (new economics foundation) Genuine Savings (World Bank)

Source: Based on *Bleys* (2009), *Lamm* (2003) and other cited literature

One of the most popular alternatives to GDP was the *Index of Sustainable Economic Welfare* (ISEW) developed by *Herman Daly and John Cobb* (1989) in the late 1980s. A refined version of the ISEW is monetary-based economic indicator – *Genuine Progress Indicator* (expressed in USD per capita) that starts with the same personal consumption data as GDP, but it adjusts for factors such as income distribution, adds factors such as the value of household and volunteer work and deducts factors such as the costs of crime and pollution. GPI includes 26 economic, social, and environmental components to give a clearer view of society's well-being.

According to *Sen* (1999), the true measure of human development is that an individual has the capabilities necessary to lead the kind of life he/she values. Well-being is an indicator of how well people are functioning or what capabilities people

have. Those features are considered by the Human Development Index that assesses a nation's achievement in three dimensions of human development: long and healthy life (as measured by life expectancy at birth), knowledge (indicated by literacy rates and school enrolment rates) and decent standard of living (per capita GDP). Only the first two components are adequate proxies for well-being as they address specific societal goals.

Many of objective indicators of well-being (including the Human Development Index) do not measure trust, gender equality, job security, environmental matters, crime, political stability etc. Subjective well-being helps reveal the progress of societies – quality of life. *Diener et al.* (2009) explain how subjective indicators of well-being can offer useful input for policy purposes and suggest that people and policy should more worry about well-being, and are less concerned about economics and income.

*National Accounts of Well-being* of the new economics foundation proposes novel way of assessing societal progress as they capture the multi-dimensional nature of well-being. They look beyond simply life satisfaction; they include also personal and social dimension as well as feelings, functioning and psychological resources. Combined well-being indicator is obtained by bringing together personal well-being and social well-being indicators. Personal well-being is made up of five main components (Emotional well-being, Satisfying life, Vitality, Resilience and self-esteem and Positive functioning), while social well-being is made up of two main components (Supportive relationships and Trust and belonging). Additionally, a satellite indicator of well-being at work (measure of job satisfaction, satisfaction with work-life balance, the emotional experience of work, and assessment of work conditions) is created (*Michaelson et al.*, 2009). The accounts are limited to 22 European countries included in the dataset.

The world's global assessment of wealth and well-being is offered by the *Legatum Prosperity Index* that analyses 110 nations worldwide (*Legatum Institute*, 2010). It consists of eight sub-indexes: Economy, Entrepreneurship and opportunity, Governance, Education, Health, Safety and security, personal freedom, Social capital. Every sub-index provides us with an economic assessment as well as an assessment of subjective wellbeing or happiness of citizens. It actually does not measure if people are happy but what factors make them happier.

Environmental economists maintain that we can attain sustainability within our current economic systems by modifying the principles of neoclassical economics (which states that there is not a limit to growth) through improvements in technology and efficiency to address environmental challenges. However, ecological economists state that any economy dependent on growth is ultimately unsustainable; economies cannot overcome environmental limitations.

The *Ecological Footprint* measures how much land and water area a human population requires to produce the resources it consumes and to absorb its wastes under prevailing technology.

The *Happy Planet Index* (HPI) launched in 2006 by the new economics foundation is an original measure that calculates for the ecological efficiency with which countries deliver happiness and long lives (well-being) for their people. It is calculated by



multiplying indices of life satisfaction (estimated by compiling responses to international surveys, with range 0-10) and life expectancy, and dividing that result by ecological footprint (expressed in global hectares per person), as Equation 1 and Equation 2 show.

$$\left[ HPI = \frac{\text{Life Satisfaction} \times \text{Life Expectancy}}{\text{Ecological Footprint}} \right] \quad (1)$$

Life satisfaction and life expectancy are combined to calculate happy life years:

$$\text{Life Satisfaction} \times \text{Life Expectation} = \text{Happy Life Years} \quad (2)$$

HPI 2.0 has been calculated with data sets for 143 countries, covering 99% of the world's population (*Abdallah et al.*, 2009). For the HPI, countries are scoring well when they achieve high levels of satisfaction and health while impacting environmental resources lightly.

## CROSS-COUNTRY EMPIRICAL EVIDENCE RESULTS AND DISCUSSION

The concern of this section is with the association of selected pairs of welfare and well-being indicators in the group of the European countries.

We try answering the question: Has economic growth improved quality of life or well-being in countries that have been already rich (developed) or more precisely is GDP per capita correlated with other indicators? International comparisons indicate a close correlation between per capita (GDP) income and many indicators of quality of life, but the relationship is often non-linear: increasing income confers large benefits at low income levels, but little if any benefit at high income levels. Moreover, the causal relationship between wealth and quality of life is often surprisingly unclear.

### **Does greater Human Development Index goes with higher GDP per capita?**

The Gross Domestic Product and the UN's Human Development Index are the most widely used metrics of international development. We can expect strong relationship between those measures as the HDI considers GDP.

As shown in *Table 2*, the European countries with the highest scores on the HDI in 2009 were Norway, Ireland and the Netherlands, while the highest per capita GDP (adjusted for Purchasing Power Parity - PPP) was again in Norway but followed by Luxembourg and Switzerland. In the sub-group of less affluent countries (Ukraine, Bulgaria, Romania, Latvia and Lithuania), the places occupied by them in the rank order were the same for the two indicators. Finland and France had very similar levels of GDP per capita and had the same score on the HDI.

As *Figure 1* demonstrates, comparisons of per capita GDP and HDI have shown that beyond a certain GDP level, the HDI does not increase significantly with additional income (see Luxembourg), however for a set of 30 countries, strong positive Pearson correlation between those measures ( $r=0.74$ ) was obtained

### **Does greater overall well-being go with higher GDP per capita and higher HDI?**

*Figure 2* shows association between the overall (personal and social) well-being scores and GDP per capita for the group of 22 European countries in 2007.

Table 2

HDI and GDP scores and rank for selected European countries in 2009

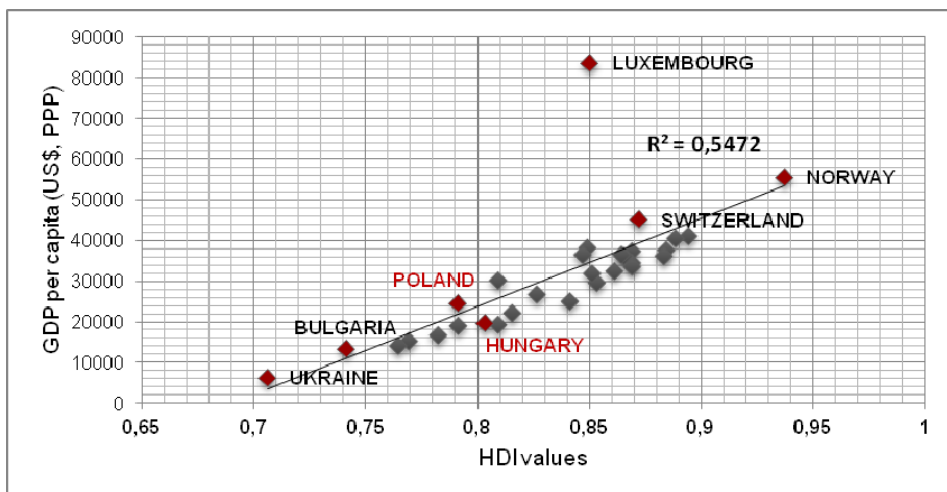
Countries	HDI		GDP per capita		Countries	HDI		GDP per capita	
	value	rank	US\$ PPP	rank		value	rank	US\$ PPP	rank
Norway	0.937	1	55672	2	Austria	0.849	16	38363	6
Ireland	0.894	2	41278	4	United Kingdom	0.847	17	36496	10
Netherlands	0.888	3	40715	5	Czech	0.841	18	25232	20
Sweden	0.884	4	37905	7	Slovenia	0.826	19	27004	19
Germany	0.883	5	36267	11	Slovakia	0.815	20	22356	22
Switzerland	0.872	6	45117	3	Cyprus	0.809	21	30223	17
Iceland	0.869	9	37595	8	Estonia	0.809	22	19451	24
Finland	0.869	7	34720	13	Hungary	0.803	23	19764	23
France	0.869	8	33655	14	Portugal	0.791	25	24569	21
Belgium	0.865	10	36249	12	Poland	0.791	24	19059	25
Denmark	0.864	11	36762	9	Lithuania	0.782	26	16747	26
Spain	0.861	12	32545	15	Latvia	0.769	27	15413	27
Greece	0.853	13	29663	18	Romania	0.764	28	14199	28
Italy	0.851	14	31909	16	Bulgaria	0.741	29	13333	29
Luxembourg	0.85	15	83759	1	Ukraine	0.706	30	6318	30

HDI – scores from 0 to 1.

Source: Based on World Development Indicators (World Bank) and the International Human Development Indicators (United Nations Development Programme).

Figure 1

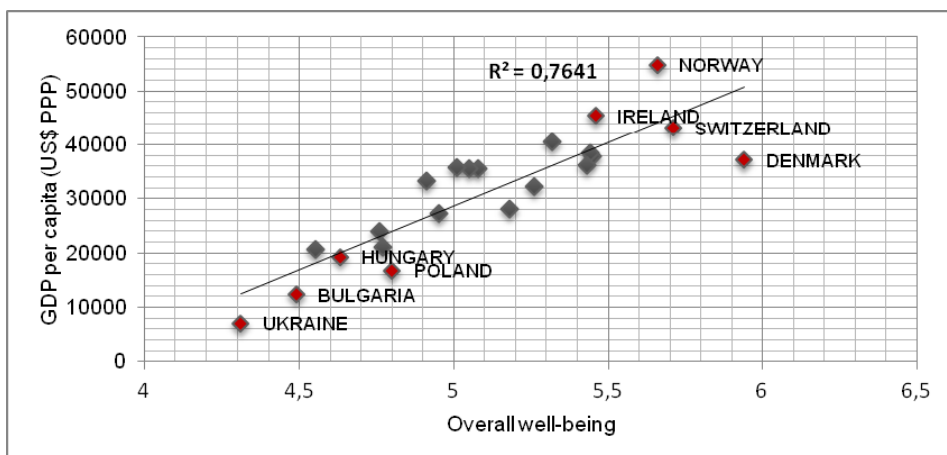
Scatter plot of GDP per capita vs. HDI by country, 2009



Source: As in Table 2.

Figure 2

Scatter plot of GDP per capita vs. overall well-being by country, 2007

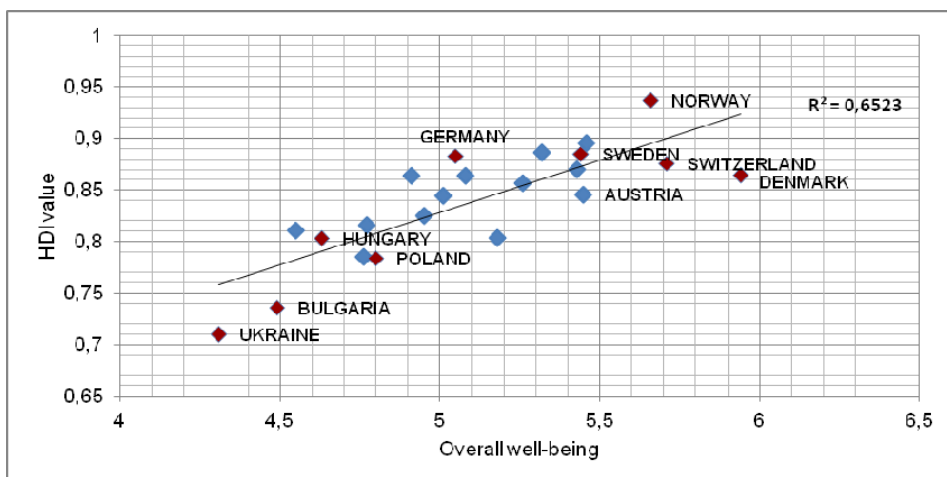


Well-being scale from 0 to 10 with a score of 5 always representing the average score across the 22 European countries included.

Source: Based on National Accounts of Well-being (NEF) and World Development Indicators (World Bank)

Figure 3

Scatter plot of HDI values vs. overall well-being by country, 2007



See Figure 2.

Source: Based on National Accounts of Well-being (NEF) and the International Human Development Indicators (United Nations Development Programme).

Denmark, Switzerland and Norway made up the states with the highest overall well-being scores, while Ukraine, Bulgaria and Slovakia scored lowest. Poland and Hungary ranked 16<sup>th</sup> and 19<sup>th</sup> place respectively with scores below an average for 22 countries. Within countries there is a noticeable positive correlation ( $r=0.87$ ) between per capita GDP and overall well-being scores. Similarly, higher well-being was accompanied by greater HDI values with Pearson correlation  $r = 0.81$  (Figure 3).

### Does greater Happy Planet Index go with higher GDP per capita and higher HDI?

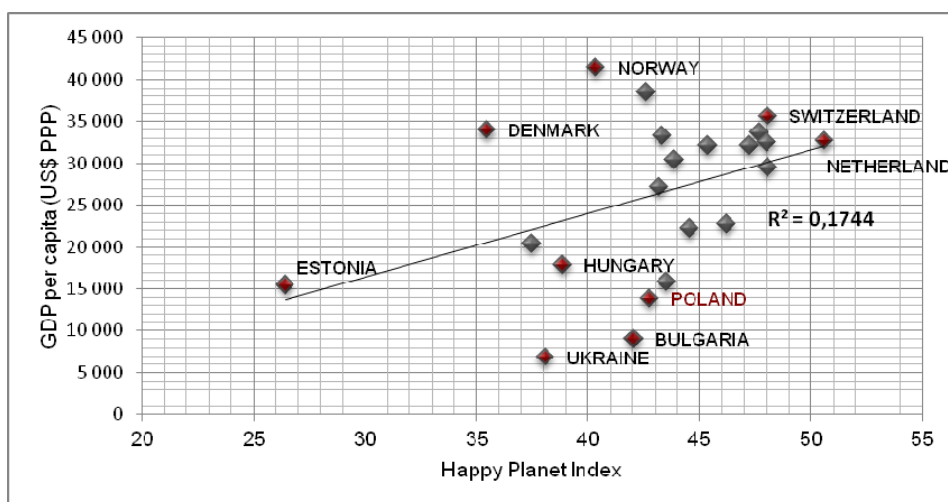
Several European countries that are meant to represent successful development (for example Denmark and Norway) are some of the worst-performing in terms of sustainable well-being as measured by the HPI (mainly due to high ecological footprint). The Netherlands, Germany and Switzerland appeared in the top three of the HPI table for the group of 22 countries. The bottom three 2007 HPI scores were suffered by Estonia, Denmark (due to high ecological footprint) and Portugal (relatively low scores for life satisfaction). Poland was ranked at 14<sup>th</sup> place and Hungary at 18<sup>th</sup> place.

Western European countries, except for Portugal, were the top of the life satisfaction ratings with Ireland, Norway and Denmark having received the highest scores. The lowest levels of life satisfaction were recorded in Ukraine, Bulgaria and Estonia.

Figure 4 that portrays the levels of per capita GDP and Happy Planet Index values for 2007 communicates the poor correlation ( $r=0.42$ ) between those measures.

Figure 4

#### Scatter plot of GDP per capita vs. Happy Planet Index by country, 2007



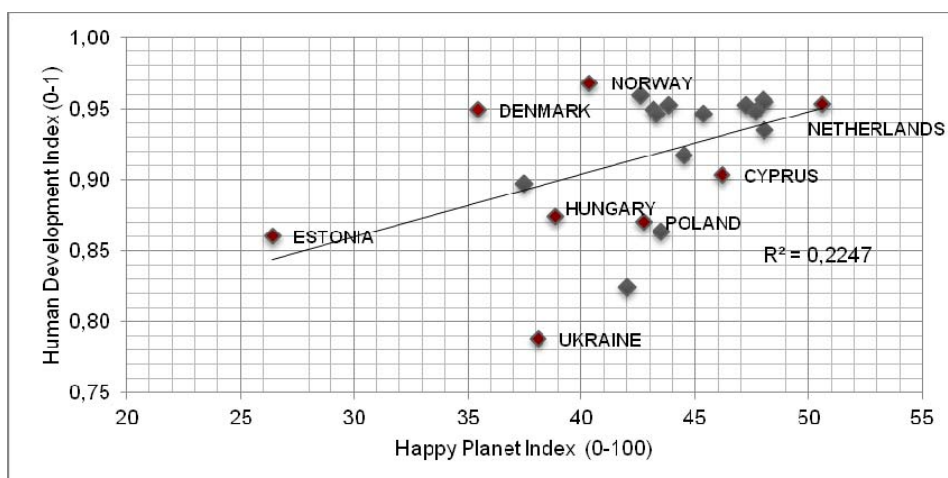
HPI – scores range from 0 to 100 with high scores only achievable by meeting all three targets (high life expectancy, high life satisfaction, and a low ecological footprint).

Source: Based on The Happy Planet Index 2.0 (NEF) and the World Development Indicators (World Bank)

Similarly, weak positive correlation ( $r=0.47$ ) was between HDI and HPI (Figure 5). Switzerland and Sweden had very similar levels of HPI and had the same score on the HDI. Analogous situation was for Austria and Finland.

Figure 5

Scatter plot of Human Development Index vs. Happy Planet Index by country, 2007



Source: Based on The Happy Planet Index 2.0 (NEF) and the International Human Development Indicators (United Nations Development Programme).

### Which countries enjoy more overall prosperity?

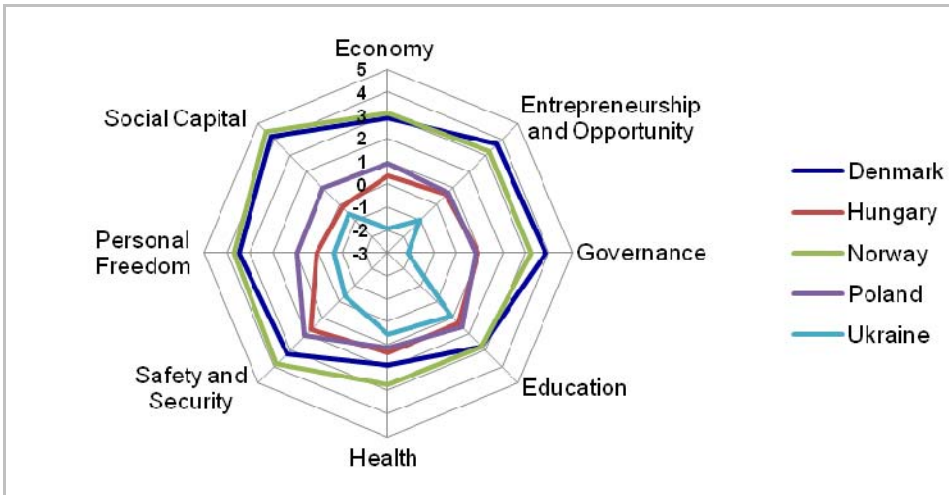
The results for 2010 Legatum Prosperity Index (*Legatum Institute*, 2010) suggest that most prosperous European countries (Norway, Denmark, Finland, Sweden, Switzerland) are very well-balanced countries since they were within World's top 10 countries by both well-being and income measures. By promoting economic prosperity, they promote well-being (life satisfaction, happiness) and vice versa. The best-performing countries also profit from democratic political systems, honest and efficient governance as well as enterprising citizens.

The four so-called PIGS (Portugal, Italy, Greece and Spain) scored lower in prosperity than the remaining Western European nations and some Eastern European nations (Slovenia was placed higher than all of the PIGS while the Czech Republic was ranked higher than Italy and Portugal). In general, however, Western Europe still performs better than Eastern Europe.

As Figure 6 shows, Eastern European countries (e.g. Hungary, Poland and Ukraine) had weaker governance and social capital but earned relatively good scores on health, education and safety, suggesting that these areas might represent their most important assets.

Figure 6

The Legatum Prosperity Sub-Indexes by country, 2010



Score = 0 indicates global average performance.

Source: Based on the Legatum Institute data.

### CONCLUSIONS

The paper questions the idea that economic growth and development as measured by GDP is always synonymous with improved well-being.

However, our results obtained for the European countries suggest that the richest nations are generally (with some exceptions) very well-balanced; their higher GDP per capita goes with higher well-being scores. Similarly, less prosperous states, like Ukraine and Bulgaria, earned the lowest scores of well-being but they perform relatively strongly with regard to ecological sustainability.

For the selected group of countries, the strongest positive Pearson correlation was found between GDP per capita and overall well-being index, while a weak association was between GDP per capita and Happy Planet Index values, the latter suggesting that countries' national incomes and years of happy life adjusted for ecological footprint are not linear.

Nations, therefore, should start measuring what they truly value (e.g. sustainability) as improving how we measure well-being is important for gauging economic performance, social progress and sustainability as well as for policy-making in those areas.

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## CURRENT ISSUES OF THE NEW PUBLIC MANAGEMENT

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### **ABSTRACT**

*The powerful increasing role of the state has begun in the 20th century. The range of tasks has been expanded, which caused an intensive growth in budget expenditures. Reforms are required because deficiencies are experienced in the effectiveness of the public funds application. The economically interpretable performance measurement is missing from the current system, which does not encourage the various institutions to restructure their businesses. Business administration- and efficiency increasing steps of the business sector effected the fiscal administration as well. Strategic aims are missing from the fiscal administration. Source allocation is ineffective and not consumer oriented. These imperfections are removable with the use of different methods of business economics. The emphasis of performance and results are urged in all over Europe, which would enable the more efficient use of diminishing public resources. The goal of this paper is to present the success of business economics adoption, based on a German example.*

Keywords: role of the state, efficiency, reform

### **INTRODUCTION**

The powerful increasing role of the state has begun in the 20th century. States with a welfare type took shape in the developed European countries. The range of tasks has been expanded, which caused an intensive growth in budget expenditures. On the other hand the claim for the qualitative public utility services on behalf of society has grown as well. In the public opinion the trust was shocked, because in the public sector the processes and procedures are complicated and non-transparent. The unclearness of the tasks made the indignation stronger as well.

The States must encounter in last decades several challenges, which are all made the declining resources management harder.

The efficiency was previously a fundamental requirement of public finance management, but this expectation was completed to our days with the results orientation. The efficiency of the use of the sources is often difficult to be determined, because different interests are opposed. Nevertheless several reforms have been implemented in the last decades, which most important common touchstone is the most efficient use of decreasing resources to provide, beside the keeping of the qualitative standard.

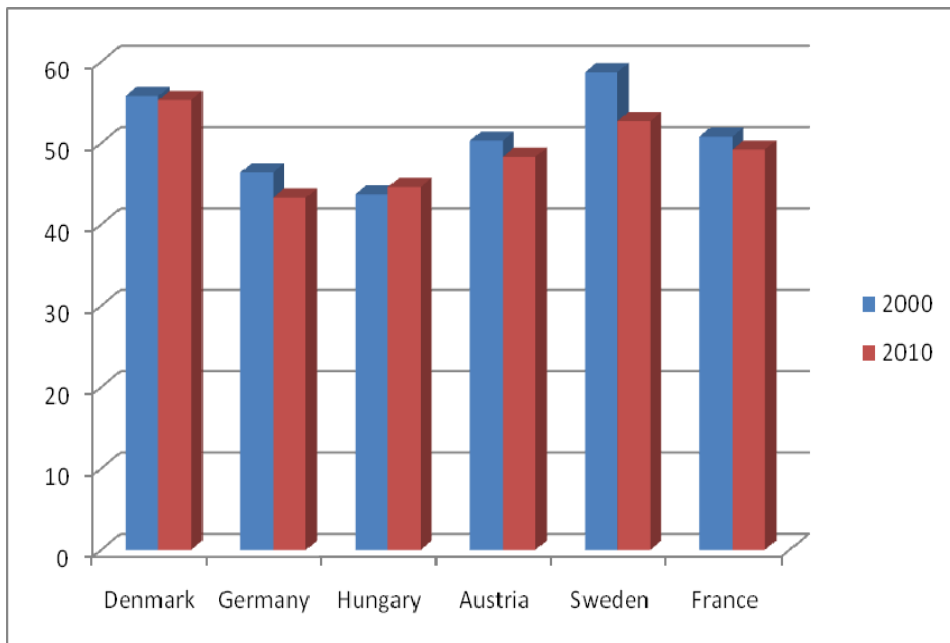
### **PROBLEMS WITH THE STATE'S ROLE**

The state's roles are different in the certain countries, but in almost every country fundamental problem is the provision of the incomes to the maintenance of the

states with a welfare type. In Scandinavian countries the redistribution is traditionally higher, such as the Anglo-Saxon countries, so it is no accident that in these countries can cause serious problems the decreasing resources (Cansier and Bayer, 2003). In the last decades in the most European countries reduced the share of government revenues relative to GDP (Figure 1), so it can be considered as the first problem of the state's role.

**Figure 1**

**Public revenues (Percent of GDP)**



The other problem is the growing expenses beside the decreasing incomes. The *Figure 2* clearly shows that in all examined countries the spending trend is rising.

The increase of the state's role can be traced back to several factors. On the one hand can be talk about demographic reasons. The aging societies cause a huge problem. As a result the social security and a pension grew, which is a considerable part inside a state's expense construction. It came into the foreground the female employment, to which it is necessary to maintain the required number of crèche. The increase of the unemployment, the transformation of roles inside the family led to the strengthening of the family support. The basic expectations of society include free health care and public education, which is beside the shrinking public resources more and more difficult to be maintained (Thom and Ritz, 2008).

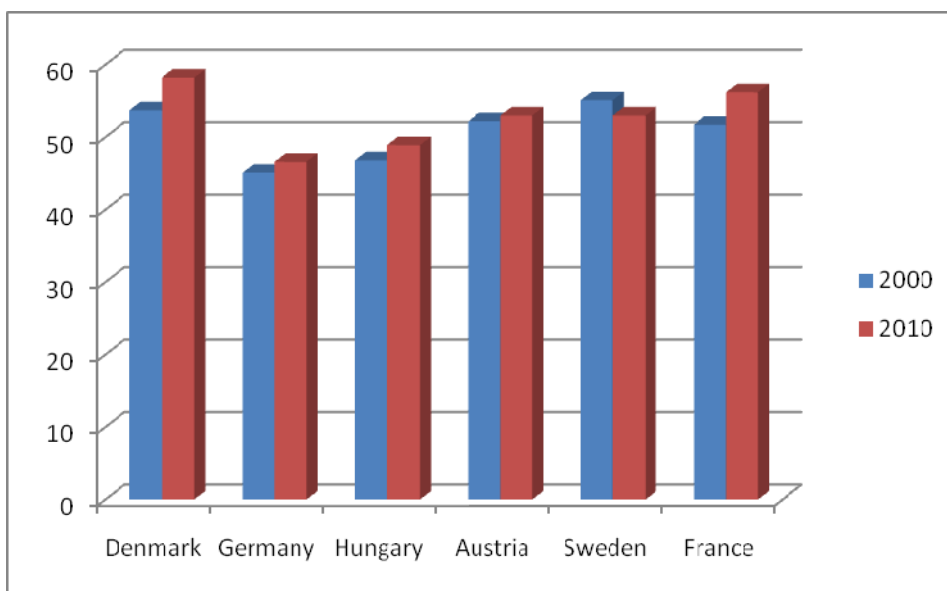
The increase of the settlement sizes enlarged the local government's expenses, because they have to provide increasingly more services. The demand for the health and education services increased. The equalisation of the regional inequalities is one

of European Union's aim, which came into the foreground in the last years. This contributes to the increasing of the state expenses as well. In addition it is typical the overspending before the elections, which is temporary, but it also increases the budget expenditures (Cansier and Bayer, 2003).

It is not allowed to leave it out of consideration, that in 2000 on the figure the incomes covered the expenses at half of the countries. In the best position were the Scandinavian countries, where the income of nearly 3 percentage points higher was than the expenditure. Opposite this in 2010 in all of the six countries the expenses in the percentage of the GDP were bigger, than the incomes. The biggest difference can be seen in France, where the revenues are 49.2% of the GDP, while spending was 56.2%.

Figure 2

Public expenditures (Percent of GDP)



The growing social expenses constitute the considerable part of the state expenses (Figure 3), which can be explicable with different demographic reasons. This one of the reasons like this can be found in the population's age construction. The age trees are showing more and more an aging society, which lead to an increase in pension expenditure. The growing expenses can be explicable with the unemployment, because the economic crisis caused a problem in Europe's countries.

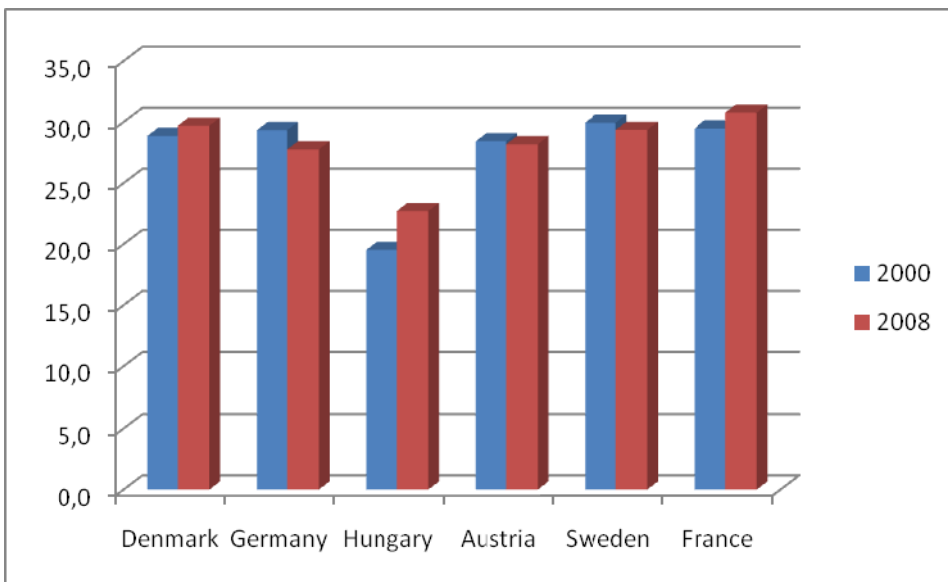
The reduction of social expenditures is an important issue for all countries; however, the benefit reductions could lead to social tension.

A reform compelled not by one factor, but several deficiencies, which did not allow of the efficient use of the public funds. The structural crisis in the financial requests the more efficient use and distribution of the sources. The customer

orientation appeared in the public-sector as well. Previously, the own aims of the bureaucracy were added to the social claims, but today public opinion research and need assessments are carried out as well. The price of products and service prices cause as well, because most of the product is free, and there are no market prices. The lack of performance incentives can also lead to wastage of resources. The lack of performance incentives can also lead to wastage of resources. Personnel crisis has evolved, causing the elimination of the previous career model. Outstandingly important, that let it be possible to check the distribution of the scant sources and his use. The corporate reports' system, the suitable information flow and the communication is able to handle this problem. From the different reports can be discovered, that the certain institutions, how to manage and is it necessary to review the management. It is important to make it possible to check the distribution and the use of the straitened sources. Hereby the requirement of the efficiency came into the foreground (*Schedler and Proeller, 2009*).

**Figure 3**

**The social spending (Percent of GDP)**



The public opinion is a very important factor in the execution of the reforms. Behind the growing social claims can be found the requirement of the efficient and effective management. If you must choose, which criteria put forward, the majority of the population would choose the effectiveness. This is the condition, that is the basis of the qualitative services, and that can be considered for the society's fundamental expectation. Because of this reason the reform processes can be examined not uniform, because the qualitative expectations are different in the several countries due to the differences in the development.

In the 90s requirement of the efficiency and results orientation have appeared together. The question is, that the efficiency of a public institution how can be interpreted and measured, opposite the private sector. As the interpretation of the efficiency has appeared the expenditure/yield rate. In the practice, however the expenditures is difficult to be reduced without the degradation of the services' quality, which ultimately lead to social tension. It is not allowed to forget that all residents expectations can not be fully satisfied. For example, what is the more important requirement in the health sector, with the available resources to care about more rapid patient, or fewer patients to probe more intensive. Maybe the people would say first that the supply of more patients with less expenditure is more efficient, but on the other hand they would dislike the decrease of the standard of the quality (*Thom and Ritz*, 2008).

The requirement of efficiency is an important goal, but the reduction of the spending does not mean absolutely the improvement of the standard and quality of the public utility services and the criteria of efficiency can fall into the background. The judgment of the state's role went through an intense change in the past 50 years, it was accepted, that there is need for fundamental changes in the interest of the satisfaction of the society's expectations. Not only the theoretical background, but it is necessary to rethink the strategic, political, economic-political, social devices, to which there was need for a view change (*Schedler and Proeller*, 2009).

The financing joined to the efficiency during the reforms. The new public-utility systems placed the result orientation into the centre and they are not financed on the rule observation basis. It is necessary to adapt flexibly to the changing claims and to the social expectations in the interest of the efficiency. The competitive spirit gained increasingly bigger space into the civil service sphere as well. Several free public utility services were replaced by a pay service with a new, high standard, and a social tension took shape. In the '90s appeared the „value for money” principle, which has been put forward that let the population get a value and quality services for his money (*Schedler and Proeller*, 2009).

Summarized can not be taken together the efficiency and effectiveness requirements, because different conclusions can be drawn with dividing the two criteria. With the efficiency can we measure the output of the resources, while the effectiveness puts the quality of the services and products in the centre, and it turned into an important social expectation. Both indicators alone are not enough, but when together used they become an important instrument of the reforms.

## **BUSINESS ECONOMIC IN THE PUBLIC ADMINISTRATION**

If we would like to interpret the efficiency and the effectiveness at the public institutions, it is necessary to examine, that what kind of differences there are between the private sector and the public sector (*Table 1*). The two main analytical aspects are objectives and decisions, with which can be proved, that what motivate the individual economic operators.

Households and so the population would like to reach a high standard of living, to which different decisions have to be brought. On the one hand it is important,

that they achieve the desired income level. On the other hand they would like the consumer expenses to be rationalized, in its interest, that they are able to accumulate more wealth.

At the companies' not the property training, but the achievement of the profit is the main objective. In addition, in the last years increasingly came into the foreground the environmental consciousness, by way of it in the goals can we find the "livable" and social environment. In order for a company a greater profit to reach, he would like to reduce costs or increase sales prices. Therefore the main decisions there are the procurement, production and sales.

**Table 1**

**Differences between private and public sector**

<b>Decision maker</b>	<b>Goals</b>	<b>Decisions</b>
<b>Households</b>	high standard of living	income goals consumer spending property forming
<b>Private companies</b>	profit social environment	provision production sales
<b>State</b>	allocations redistribution stabilization	legislation, political, economic-political and company economy decisions

Source: *Hieber, 2010*

The state is a special operator, whose aims are, beside the observance of the social needs, the allocation, redistribution and stabilization (*Cansier and Bayer, 2003*). In order to be able to achieve this, several laws should be created within the framework of the rule of law; policy, economic policy decisions should be taken that can influence the state's function.

It is possible to adopt in the public sector the measurement, analysis, leadership methods on more areas, which are applied by the companies (*Brede, 2005*). To all this but it was necessary to break with the previous practice and there was need for a paradigm shift. In a reform not only to introduce new tools, but organizational changes are required as well. In addition, it is necessary to work up the suitable legal environment, that the requirements of the rule of law are not prejudiced (*Jenei, 2010*).

The elements of the company economy can appear in the following areas:

- Corporate economy in the central administration
- Corporate economy at the state companies
- Corporate economy activity in the framework of lawful conditions (Budgetary right, official right of service)
- Corporate economy and the social sciences (psychology, sociology): organization, staff cases, leadership (*Hieber, 2010*).

### **The concepts of the public administration's reform in the practice**

The reforms for example in Germany depending on what kind of transformations and what kind of systems of tool were implied, different names were received in the practice.

The first concept of this is the new administration model (*NSM: Neues Steuerungsmodell*). The model expresses the strategic management which can be found in the local public administration, the municipal sector. It is based on Lean management, which can be characterized by:

- Simple management structure
- Decentralized decisions,
- Teamwork and incentive,
- Responding to Change,
- Continuous improvement, development (*Losonci, 2010*).

The new administration model suggests that the individual entities are not managed through the allocation of resources, but also by the expected outputs. The decentralized system of responsibility must be established by the individual budgets.

The next concept, in which the reforms appear on a member state level already, the new administration devices (*NSI: Neue Steuerungsinstrumente (Land BW)*). By way of the new administration devices the state reforms are supportable on all areas (staff, organization, budget). The performance and the result got into the centre. The measurement of the efficiency and his assessment became important. In the new management devices which can be found in the company economy are the product definition the cost-and performance counting, the report and monitoring, the budgeting and the planning. With these devices can be improved the public administration's efficiency and effectiveness (*Hieber, 2010*).

In addition, we can meet the concept of the slimmer / narrower state, which the reduction of the expenditures of the federal government (central administration) contains.

In the international literature the concept of PM - Public Management came into general use. It is mean a direction of the administrative reform and the state modernization, which based on the acceptance of the management techniques, which can be found in the private sector. In addition, includes the conversion of the legal environment and organizational operation as well. The applied devices can be very different from country to country.

### **The elements of the modernization of public administration**

In the '90s a demand on the customer-oriented service companies was appeared, to which the internal and external modernization is necessary (*Table 2*).

The improving of the management of public institutions is difficult because there are a number of specialties. First, there are the "products" and services. There are only some description, which includes, that what kind of quality can the citizens expect. The compilation of the budget and his keeping may cause a problem, because of the deficiencies of the cost calculation and because of the gratuitousness of products.

The decentralized resource allocation can improve this situation, because the employees of the institution are the most aware of the problems of management (*Schedler and Proeller, 2009*). The allocation and the use of the resources can improve

with an effective reporting system as well, by which not only can be examined, what costs were incurred, but what the supply of the tasks came true.

**Table 2**

**Elements of modernization**

<b>Internal modernization</b>	<b>External modernization</b>
<u>Product description</u>	Competition orientation
Cost calculation	Comparison of the authorities
Budget	Benchmarking
Decentralized resource allocation	Quality management
Corporate reporting system	
Incentive scheme	

Source: *Hieber, 2010*

The competition orientation and the opportunity of the comparison of the different authority from the efficiency effectiveness carries the compulsion, that the using of the available sources follow up and make unambiguous.

To this can be a big help the method of the benchmarking. It is possible to take into consideration previous experiences and methods, which can be found not only in the public-sector, but it is necessary to examine at the profit-oriented company used devices as well, which after a changing can be used in the public sector.

The quality is the basis of the measurement of the effectiveness. If it is possible to take over the quality management in the public-sector, then the effectiveness of the use of the services and “products” expenses will be an essential element in the management.

**Economic objectives in the public sector**

Other aims appear at the states, as we already exemplified it in the *Table 1*. Primary viewpoint is the supply of the public tasks. It includes for example the national defence, the public education, the public health, the flood-prevention, the legal security, and it is necessary to realize it beside the decreasing sources. An important aspect is, which appear in the Maastricht criteria as well, the deficit limit, which can be realized by the increase of the incomes and by the reduction of the expenses (e.g.: supports, benefits). For example the minimize of supports adapt this aim. On a long-term it is necessary to establish the cover of the costs to avoid overspending. In addition surplus can be obtained with the forming of the market relations, by which can be increased the effectiveness.

**THE CHARACTERISTICS OF THE PUBLIC SECTOR IN THE BUSINESS ECONOMICS**

It is not possible to fully adopt the devices, which we known in the corporate economy, because of the characteristics of the public-sector.



### **Procurement**

There are special rules for public procurement - there is no "free" public procurement. This can be exploited and many times higher value is determined than the market price, which does not allow the reduction of the costs.

### **Production**

The product range is very heterogeneous, there is not a conscious diversification strategy. It is difficult to delimit the different "products" and services, and hereby it is difficult to formulate the quality expectations.

### **Sales**

The transfer of goods, sales happened in most cases on free or "close to the market prices". At the public services come to the surface a kind of a join and use compulsion.

For example, we can not say that we want to pay less taxes, because we do not wish to have public lighting.

### **Financing**

The construction of the sources differs from the companies of the private sector. The financing happens mainly from taxes and benefits, and the sales incomes are only a small part from the sources.

### **Management**

The designation of the target system and the tasks are often legally and politically determined and not market-oriented. The requirement of the efficiency can be injured hereby, because the use and distribution of the sources are from outside determined.

The decision limitation can cause problems in the administrative leadership, because of the political influence and budgetary right.

Decision limitation in the administrative leadership by political influence and a budgetary right

### **Accounting**

Contradictions can be experienced in the application of the single (of circulation of money) and of the double-entry bookkeeping, which plays an important role in the requirements of the effectiveness as well.

### **Human resource**

The performance orientation gets into the centre more and more, opposite the previous career models. The hierarchical construction (hierarchy - literally „holy power") often hinders the effective management (*Hieber, 2010*).

### **Indicators**

At the private companies it is possible to apply quantitative and qualitative indicators to the judgment of the success. Quantitative indicators can be for example the costs of the products, cover of the product's costs, the economicalness, the productivity. The customer satisfaction, the organizational

atmosphere, and the motivation can be defined as qualitative indicators. These analysis methods are receivable in the public sector after modifications.

### **Reports**

To make suitable decisions the formation and share of relevant information with politics and administration leaders are necessary. The efficient leadership is essential for the suitable reporting and informational system.

The most important requirements of the reports are the following:

- From a management viewpoint contains relevant data
- Do not be data cemeteries, does not contain unnecessary information
- The timeliness and transparency are important. The old data can distort the decisions.
- Over complicated data make the interpretation and the decision difficult
- It is necessary to present the management unambiguous and concise

## **PREVIOUS REFORM EFFORTS**

In the 80s in the European countries the public administration got into a crisis. The common feature of the reforms, that they began with management reforms, which placed the requirement of the efficiency in the foreground. Later the processes were completed with politics reforms and administrative legal innovations, and the expectation of the effectiveness appeared. To all this the first step was the changing of the base of the attitude. A paradigm shift was needed.

As the second step the technical components of the reform was developed. The structure and the function of the public institutions was changed inside this. They rethought the competences and the responsibility. It must be to create a suitable legal environment for the rule of law, which helps to execute the institutional and organizational reforms. To the measurement of the efficiency and the effectiveness it was necessary the obsolete checking systems to renew (*OECD*, 2010).

The reforms have resulted tensions in the society in many countries. The cultural differences resulted different reforms. One of the most important reforms was took place in the British public administration.

### **The British public administration reform**

The antecedents of the program, that after Margaret Thatcher was elected in 1979 she announced the transformation of the public-sector. Similarly to the most reform processes they put the requirement of the efficiency into the foreground. To the tasks was placed the staff work force reduction in the public sector, the reduction of the budgetary expenses and the moderation of the taxes. In the first step only partial results have been achieved, because the keep back of the expenses was not successful. After it the state institutions' employment were frozen, first three, then five percent personnel reducing were prescribed. An efficiency audit was introduced, that helped to decrease the wasting of the public institutions. 12 000 workplaces phased out by way of the measures, and 180 million pounds were saved (*Jenei*, 2010).

The competitive spirit wanted to take over at the local governments as well, so the binding prize competition for the maintenance of the public buildings and highways appeared at the public institutions. To improve the control prescribed the establishment of an independent audit committee. In addition, to reduce the tax revenue the local taxing options were limited.

The reform has not taken a break organically, because the root of the problem was not eliminated. To 1985 was recognized, that a general system problem exists in connection with the public institutions, and a long-term comprehensive reform process is needed.

Then began the developing of the "Next Steps" program. The transformation of a system: specific institutional targets were determined for each department with own budget. In addition, not only the use of the resources, but also the achievement of the objectives and the results were also monitored. To this control and to the knowledge of the use of the sources was needed to build an information system, which reliable data provides, and from it can be establish, that the organizational units how large expenses have. 1800 performance indicators were defined under short time, with which the single organizational units can look after the costs and the efficiency of the use of the sources (Jenei, 2010).

They thought that the management's standard can be improved if

- The borderline is cut between the politics and the public administration,
- The public institutions receive bigger autonomy,
- An active control system is developed, therefore supervising the use of the sources became possible (OECD, 2010).

With the execution of the reforms Peter Kemp Minister of Finance was charged. The Minister and his commission created the Kemp's Draft, in which more proposals were drawn up They set up "administrative offices", where the service functions of the ministries and department separate from each other. These offices define the ministerial strategic plans, the objectives to be achieved, and control their fulfillment. It was suggested, that the leaders of the offices from the public and private sectors are selected. The proposals included, that the ministries and agencies conclude a three-year general agreement, which recorded the results to be achieved, and the degree of the flexibility of the office functioning (OECD, 2010).

The legal relationship of the public service had also changed. Instead of a career model, the jobs were competed again in every three years, and a performance oriented wage system was developed, in which the compensation of the to the jobs required ability were taken into consideration.

During the conversion to 1996 126 new administrative offices were set up, which nearly 75% of the public service supplied. In order that the offices conform to the requirement of the effectiveness as well, if the general agreements expired the offices were examined. Three types of decisions can be born after the test: continuation, termination, and sale (OECD, 2010).

The efficiency of the public institutions have improved, and managed to save more hundred million pounds by the reforms, but the society's expectations plunged into danger the process of the transformation in Great Britain. The

population perceive only the standard of the services; this is why it is necessary to comply with the requirement of the efficiency beside the effectiveness.

Innovative solution was used to answer the problem. They set up the contracts of citizens. The public services were put under population control. The regulations were formulated understandably and it was published. Besides the service list the redress possibility are indicated that the citizens should be act in their own case, if

- they did not receive the service, which was described in the criteria
- there is a complain about the public service (OECD, 2010).

## CONCLUSIONS

An administrative reform can be considered for successful, if the efficiency of the distribution and use of the sources can be increased, and the standard of the services does not decrease. To this but there is needed comprehensive processes, which can not bind to the each political cycle. The gaining of the social acceptance is one of the keystones of the reforms. If the public sector operations and services become a transparent, the population can set beside the change. The other important element of the processes is the employees. It has been proved that the lower-level employees are often more thoroughly acquainted with the organization's defectiveness, than a senior manager.

By the developing of the competition spirit can be reduce the wasting as well. The public corporations disregard the criteria of the efficiency in many cases, because there are no such informational systems, in which the expenses and the performance exactly can be look steadily. It is necessary to attend it, that the greatest risk of „public funds run-off” can be found where the public and private sector meet!

An overall efficiency and performance measurement would be necessary in Hungary also because

- of the efficient use of scant resources
- of the increase of efficiency
- of the reduction of wasting expenses

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## THE INFLUENCE OF TAX ALLOWANCES ON TAX LIABILITY

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### ABSTRACT

*Though the tax system has changed significantly in our modern age, we have certain abiding expectations of it. Namely, that it be clear, simple, and fair. One way to simplify taxation would be to introduce the flat tax system. This concept stimulates domestic and foreign experts, provoking strong opinions both in favor of it and against it. In practice the flat tax system has shown varied solutions and results. Although the amount of the tax rate has an important role in the development of tax liability, we must not neglect the diminishing influence of the tax allowance. For governments struggling with socio-political problems, it is not an easy job to create a fair tax-system. Governments support savings, child rearing, and other important causes according to economic and social considerations through taxation systems. There can be big differences between tax burdens for the various income levels, especially if a certain part of the benefits is fixed to an income limit. Taxable persons are entitled to several allowances. Tax allowance advantage or disadvantage could be a problem between them. All these factors can affect the transparency of the tax system significantly. Cutting these possibilities radically would simplify the tax system significantly even if the system in question is a progressive tax-system. The range of tax benefits has become significantly smaller in Hungary. The version for 2011 introducing the flat tax-model ensures a great tax reduction for parents with children. In European countries, a trend of reduction in personal income tax has been prevailing. The arrangements in Hungary follow the regional trend.*

Keywords: tax system, fair, transparency, flat tax model

### INTRODUCTION

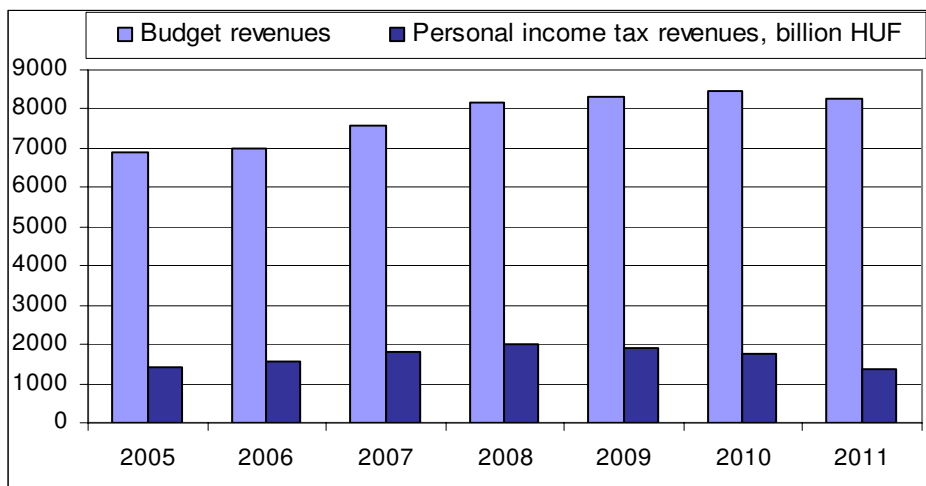
The role of the three classic economic functions, i.e. allocation, redistribution, stabilisation is different according to historical periods and governments; conformity between them is shaped by taking the current objectives into consideration. In addition to the allocation of revenues, functionality can be maintained by the regulation (Burján *et al.*, 2007). The following factors play a significant role in setting objectives on the tax policy: Determining the adequate size and structure of the tax income, supporting the economic political ambitions and achieving the socio-political aims. There are several methods for the redistribution of incomes through the tax system, ranging from determining the extent of progression through the correction items of the tax base to the conditions of tax allowances. In practice, some proportional combination of the above-mentioned methods is implemented; the more of them are applied, the more complicated the tax system is made. When modifying the system, simplification is an important aspect; however, the question is to what extent the tax system is able to meet the requirements of the modern times and the actual tax political priorities.

### **The tendency of revenues from personal income tax**

Among budgetary revenues taxes collected by the Hungarian Tax Authorities (APEH) play a significant role (*Figure 1*). The total proportion of personal income tax, social security contributions and general turnover tax payments has amounted to approx. 80% for years. In spite of the slightly decreasing tendency tax centralisation is high. The structure of collection has changed favourably: mainly due to an increase in the general turnover tax rate, the proportion of turnover taxes has risen, while the proportion of income and contribution burdens has decreased. As a result of the flat-rate income tax and the proposed legal amendments (phasing out the increased gross tax base) this trend is expected to continue in the future.

**Figure 1**

**Personal income tax revenues in budget revenues,  
between 2005 and 2011, billion HUF**



Source: homepage of Hungarian Central Statistical Office, Budget revenues

### **Changes in declared incomes**

Revenues from personal income tax are crucially influenced by declared incomes. Due to the financial crisis, the rise in revenues belonging to the aggregate tax base stopped in 2009, the changes in the amount and structure of the separately taxed incomes may be traced back to amendments in legal provisions (*Table 1*). The average tax burden on the separately taxed incomes was determined by the proportion of the taxable incomes and the tax rate belonging to the individual incomes (tax on property sales, tax on dividend, tax exemption).

Among the revenues belonging to the aggregate tax base, the proportion of taxes from employment made up around 90% until 2006, but it has exceeded 80% since 2007. The change was due to the amendment of law, namely from this year on no tax was imposed on pensions, which led to about 50% increase in the fiscal

year. Payments without tax constituted a special income bracket<sup>1</sup> which were exempt from taxes (they were not subject to declaration), as long as private individuals had no other income. If this condition was not fulfilled, these sums had to be recorded in the tax return as a part of the aggregate tax base but the tax imposed on such payment decreased the tax liability.

**Table 1**

**Declared incomes (billion HUF) and the average tax burden (%)**

	2004	2005	2006	2007	2008	2009
Incomes in consolidated tax base	5853	6391	7001	8048	8670	8301
Tax of consolidated incomes	1127	1207	1332	1503	1636	1503
Tax burden %	19.3%	18.9%	19.0%	18.7%	18.9%	18.1%
Incomes taxing separately	582	644	753	945	580	574
Tax of incomes taxing separately	104	126	155	186	154	139
Tax burden %	17.9%	19.6%	20.6%	19.6%	26.5%	24.3%

Source: Based on NAV<sup>2</sup>

The distribution of incomes according to tax rates meant a restructuring to the advantage of higher income categories. While in 2004 37% of incomes did not reach 1 500 000 Ft, in 2009 less than 25% belonged to this category. In 2005 the number of tax rates decreased to two rates (below 1 500 000 Ft 18% tax rate was imposed on incomes, over this sum it was 36%). During the examined period by increasing the tax brackets the number of incomes with the lower tax rate did not fall significantly.

**The tendency of tax burdens according to incomes**

By examining the tax return in recent years, the average burden on the aggregate tax base declared by individuals is below 20% (*Figure 2*), which shows a significant spread according to income levels. The tax burden on minimum wages in 2009 did not reach 3%, whereas in case of incomes over 6 million Ft 30% tax was imposed.

In shaping the tax burden the measure of tax rate is one of the most important factors, although the computed tax may be reduced by different items. In addition to the tax allowances – dealt with in the following chapters - tax credits related to wages and salaries, as well as, payments which are exempt from taxes should be highlighted. Tax credits are bound to income limits, therefore the tax imposed on lower incomes falls, and the „decreasing” tax credits modify the progression. A major part of tax allowances may only be enforced up to a definite income level. Due to the stricter conditions, since 2007 none of the restricted allowances may be enforced over 3 400 000 Ft (in a decreasing amount up to 3 900 000 Ft), from which only tax allowance for families was exempt with a higher limit. As a result of the measures the

<sup>1</sup> With the introduction of a flat tax rate since 2011 these incomes – except for incomes from student work have been exempt from taxation.

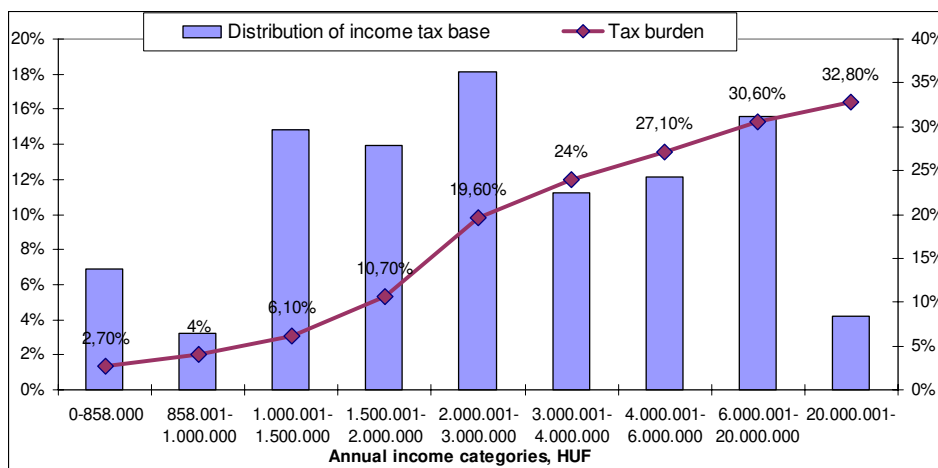
<sup>2</sup> <http://www.apoh.hu/>: „Személyi jövedelemadók – adóstatistikák 2004-2009.”, 2010.10.07.



number of taxpayers entitled for allowances has shrunk, for example after the annual life assurance premiums and pension scheme payments the number of those claiming allowance fell by 12%. The correction of the tax brackets in case of tax credits provided lower taxes for a growing number of individuals, thus more than 80% of taxpayers could reduce their tax liability by some allowance.

**Figure 2**

**The distribution of income tax base and the development of tax burden in income categories in 2009**



Source: Based on NAV<sup>3</sup>

**Allowances of calculated tax**

Besides income limit, due to the changes in both the range of allowances and the conditions of certain allowance types the proportion of tax allowances to the amount of calculated tax has changed, too. *Figure 3* shows (right hand scale) the lowest value in 2006; in that year the share of tax allowances decreased to less than 23 per cent.

From year 2006, child allowances have been available for families with at least three children; and at the same time it shrunk from 10 thousand forint to 4 thousand per beneficiary dependent. The total amount of allowance could only be claimed if the annual personal income did not exceed 6 million forints. Looking at the composition of tax allowances (*Figure 4*) it is found that a major part of the amount coming from the shrinking child allowances has been reallocated to tax credits of wages by having changed the income limits for allowance. A quite popular type of allowance can be emphasised at the beginning of the period. The so called “sulinet” allowance<sup>4</sup> significantly contributed to the improvement of the number and age of computers (and digital cameras till 8 March 2004) used by households; with an annual

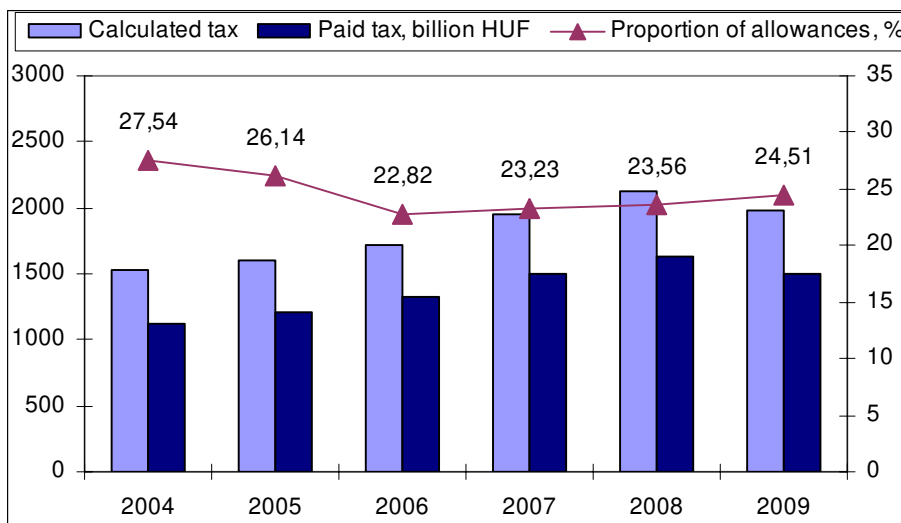
<sup>3</sup> <http://www.apeh.hu/>: Sajtótájékoztató háttéranyag, Budapest, 2010.09.14.

<sup>4</sup> Private individual may have decreased their tax by 50% of the price of a new computer or maximum 60 thousand forints.

15 billion forint of tax credit. Following the shaping out of this type of allowance adult education became an allowance of tuition fees from 2007, but even the sum of these two allowances could not reach 1 per cent of the allowances.

Figure 3

Calculated tax of composite tax base and the paid tax reduced with tax allowances between 2004 and 2009, billion HUF



Source: Based on NAV<sup>5</sup>

The increase of tax allowances in 2004 was obviously due to that pension had moved among non-taxable revenues. Therefore the structure of items of tax allowance modified (Figure 4). However, many lost their tax allowances due to the pension, thus their tax burden increased. In 2009 the amount of pension decreased within the aggregate tax base, thus the relating allowance decreased as well.

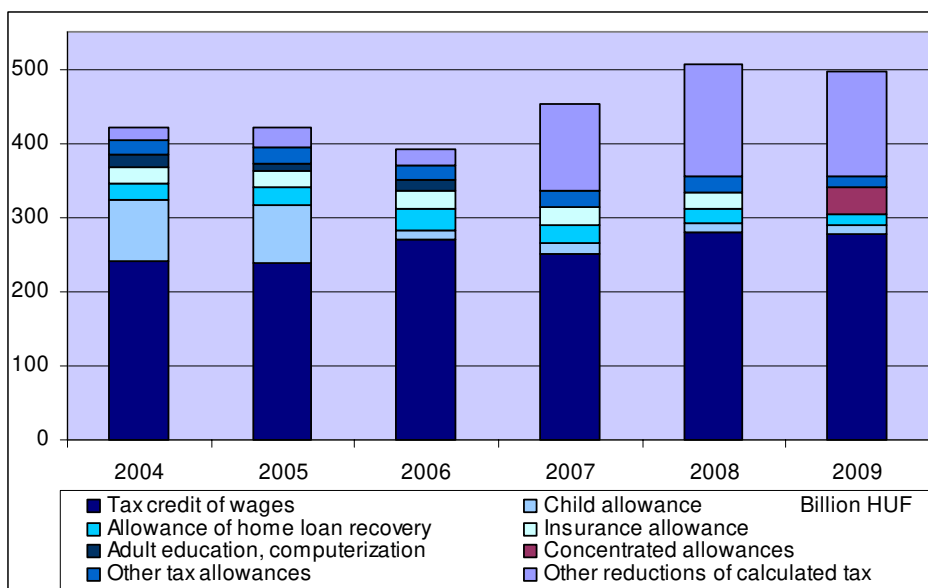
In 2004 allowances of home loan recovery significantly decreased. From 2007 it has been even phased out as new opportunity. From that year this allowance can only be claimed – with the conditions of 2006 – if the paying back of loan started before 01.01.2007; thus its share and amount has been decreasing year by year.

Insurance allowances were the highest in 2006 (some 25 billion forint). Besides a lower income limit the allowances available for individuals was further cut by that this allowance become subject to the so called 100 thousand forint limit, thus even in case of several different allowances, more than 100 thousand forint was not claimable. In 2009 – in terms of simplification - the law imposed similar conditions on the majority of tax allowances - introducing the new “household allowance” at the same time. The aggregate tax credit is 30% and maximum 100 thousand forint.

<sup>5</sup> <http://www.apch.hu/>: „Személyi jövedelemadók – adóstatistikák 2004-2009.”, 2010.10.07.

**Figure 4**

**Items<sup>6</sup> of tax allowance on aggregate tax base, 2004-2009, billion HUF**



Source: Based on NAV<sup>7</sup>

Allowance of life assurance premiums and of pension scheme payments can be claimed with no income limits, but it does not reduce the payable tax, the amount of the allowance has been transferred to the personal account by the authority on the basis of person's declaration, since 2009.

### Effect of law modifications on tax burden

The earlier two-tier taxing has been replaced by a flat rate personal income tax scheme from 2011 (*Figure 5*). The eventual effects of this linear 16% tax rate are still to wait for. The increased gross tax base introduced in 2010 leads to that tax burden in the tax brackets where tax allowance cannot be claimed is 20.32 per cent, while below it – right due to the allowance itself it is not linear.

As consequence from the above mentioned, the average tax burden decreases at the beginning of the decade, but for those with lower incomes favouring change will be brought if the increased gross tax base is phased out – obviously presuming that the conditions of tax allowances remain. The law in force will decrease the tax base amendment from 2012 to 13.5 per cent and it will be phased out from 2013. The

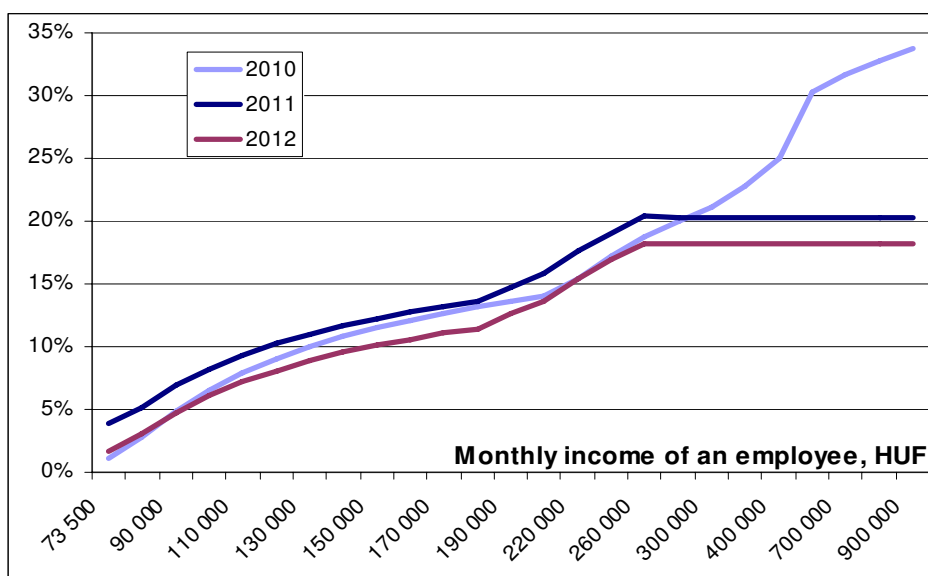
<sup>6</sup> Among the allowances belonging to other allowances, only the amount of allowances on volunteer mutual self-help payments exceeded 10 billion forints at the beginning of the period, giving 3 per cent of the total beneficiaries; after that both its amount and share gradually decreased. During the period, none of the other allowances reached even 1 per cent.

<sup>7</sup> <http://www.apeh.hu/>: Sajtótájékoztató háttéranyagok, Budapest, 2006-2010.

income limit increased in 2010 and it declined in 2011, but still is better than in 2009. In 2009 more than 3 million people claimed for tax allowance, this number is not anticipated to change. Since 2010 only the child allowance, personal tax allowance and allowances of agricultural production and of long term self-care can be claimed. It is interesting that life insurance allowances are not any more available even despite the 10 year duration in the conditions. Allowances on pension scheme payments gradually decreased. Although the amount of the credit could contribute to personal savings, for those suffering from daily liquidity problems this is not an option any more.

**Figure 5**

**Tax burden of rentals between 2010 and 2012**



Source: Based on the modified law 1995. CXVII

### Family taxation, child allowance

Family taxing may be mutually a means for imposing tax according to marital status and a progressive tool. There are several ways to imply family taxing. One frequent and simple method is to bind the tax base to the marital status or to the number of children. “The effect of these two methods is different; while the family taxing defining the tax base modifies the limit of tax-freedom, the decrease in tax burden due to tax allowances decreases the effective tax rate” (Balogh et al., 2010)

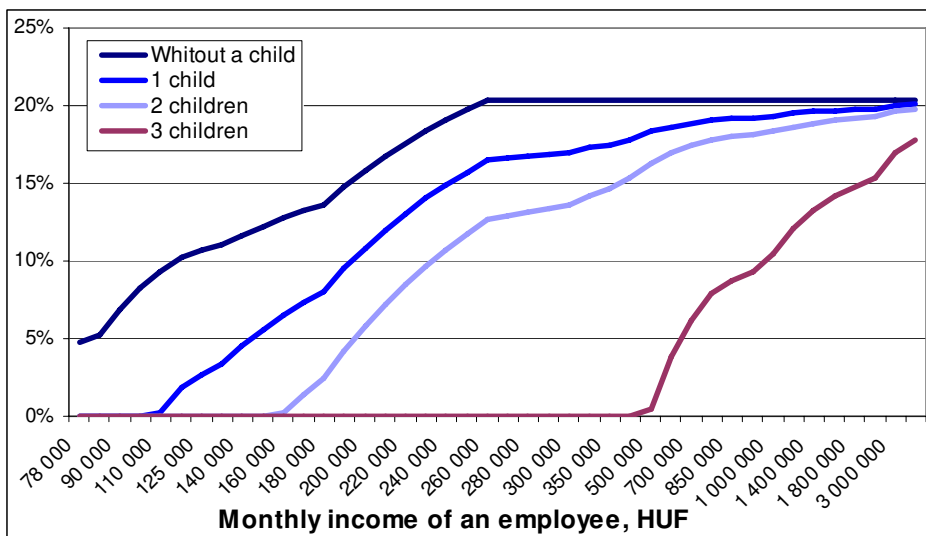
A more complicated method is splitting used in Germany and France, where the total income of spouses or even of all people living in the family is the tax base.

As a consequence of the changes of Hungarian law one of the most significant allowances was the child allowance in 2010, because more than 100 thousand parents claimed an average allowance of 110 thousand forint. The importance of this allowance increased in 2011. Those children with no or one sibling become

subject to the allowance again, thus the number of those entitled for allowances multiplies. As new element, this allowance is a tax base corrector. *Figure 6* shows that up to 500 thousand forint of monthly income parents with three children do not pay tax (*Figure 6*).

**Figure 6**

**Tax burden of rentals with family allowance taking into account in 2011**



Source: Based on the modified law 1995. CXVII

Opinions of neither private people nor professionals are uniform. The question is whether the tax system needs to ensure the principle of fair or even reallocation. After the decrease in family allowance and as a result of higher child benefit it was found that the tax allowance is claimed by richer families in similar extent to most needy ones (*Handa, 2007*). We must not forget about that the base of contribution to be paid by people with higher income is also higher, thus in spite of higher allowances their burden is higher, as well. Many people see child allowance as “tax” for people with no children; the problems of pension system up-value the role of self-care over generations (*Ambrus, 2010*).

**International practice: linear tax rate with allowances**

Flat rate taxing put in force in 2011 fits into the international and primarily to the CEE trends. The main reason for its introductions was a requirement for one of the most important tax system: the simplification. Of course, simplification should imply for the definition of tax base, which come true due to neither the increased gross base nor the previously mentioned child allowance. Another question arising from tax theoretical aspect is that in case of a linear system, what is the reason for applying such aspects (child allowance) that even decrease progressivity?

Pros of flat tax rate emphasise the simplification of the system - besides fair tax burden. Considering the personal income tax although, the single flat rate is rarely used. In those countries, where this tax system is chosen the rate is so low that no further allowances are necessary (e.g. Bulgaria, 10%). Various correcting items may lead to a less transparent system. In few countries (Russia, 13%) tax credit is not bound to income limit, thus a progressive tax system is applied despite the flat rate. In most complicated options, those with the highest income are excluded from tax allowances. Due to the decreasing tax allowance the marginal tax rate is higher, and above the income limit linear taxing is implied (see *Figure 5*). Similar to the Hungarian system is used for instance in Romania (16%).

## CONCLUSIONS

The analysis of the period shows that the average tax burden on incomes decreased. According to our calculations tax burden are crucially influenced by tax allowances between 2004 and 2009. The results show the paid tax was 22-28% lower than calculated tax. The new proportional taxing scheme been introduced and its peculiar rules represent a positive change for those with income living in families with children. In Europe there are some examples of addition fair allowances to linear tax system. In Hungary the mid-class is small. The measure favouring for families with moderate income and children will likely cause the smallest loss of revenue for the government. For lower income categories, the tax credit system still in use resulted in lower tax burden, but with shrinking tax allowances the phasing out of tax credit brings increasing tax burden. Allowances on pension scheme payments and volunteer mutual insurance payments remained, despite that phasing out the allowances on life insurance payments, the encouragement for long term savings was significantly hurt. The personal income tax system might be simpler cutting allowances. The simplification is recommended by EU, too. The transparency of the tax-system means an indisputable competitive advantage, especially if the tax-rate is moderate. The possibility of tricks to minimize taxpaying can decrease and the collection of taxes becomes more efficient helping the tax revenues increase.

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## COMPARATIVE EXAMINATION OF THE FINANCIAL DATA OF BIG GAME MANAGEMENT IN THE SOUTH-TRANS-DANUBIAN REGION

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### ABSTRACT

*This article demonstrates the comparative examination of the financial data found in the reports of the game management concerning the counties of the South-Transdanubian Region. The healthiest cost structure was in Tolna County nevertheless the 2003/2004 hunting year showed a deficit. In Somogy and Baranya counties the damage caused by game was so big that the management could not compensate it.*

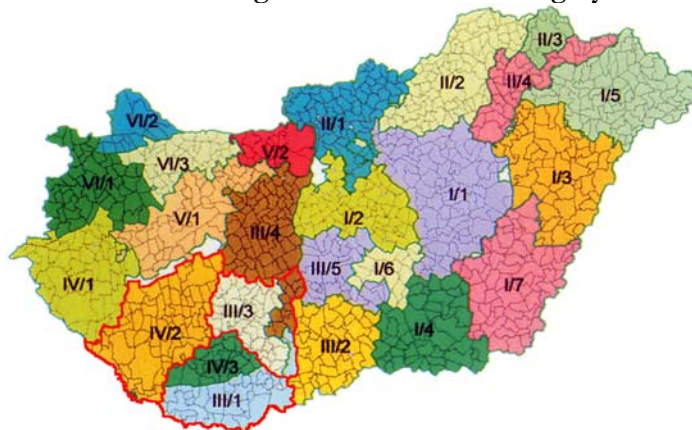
Keywords: big game management, balance, expenses, incomes, inflation

### INTRODUCTION

The South-Transdanubian region is characteristically a big game territory, where the red deer (*Cervus elaphus*), the fallow deer (*Dama dama*), the roe deer (*Capreolus capreolus*), and the wild boar (*Sus scrofa*) finds suitable habitat and have important stock size. The stock of the red deer, the fallow-deer and the wild boar needs to be reduced. The size of moufflon (*Ovis ammon*) population is insignificant. With the exception of 12 (small game hunting) areas, all the other (more than 150) are big game areas (Figure 1) in the examined counties (Baranya, Tolna, Somogy).

Figure 1

Game management districts in Hungary



Source: *Nimród*, 1999. 87. 1. 5. p.



Among the big game species, the quality of the red deer and the fallow deer occurring in the region is outstanding internationally, which is the joint result of the excellent genetic background and good habitat.

## **MATERIAL AND METHODS**

The regions prepare annual game management reports (the hunting year endures from year 1<sup>st</sup> March to next year 28<sup>th</sup> February), which is transmitted to the Main Department for Game, Fisheries and Water Management. The report contains the number of harvested game, data of the savage agriculture, financial data, and the data of the damages caused by game and fines. From the 2003-2004 hunting year, the resources gained by tenders and subsidies take part in the report too. The financial data are just informative, they were not made for balance or profit and loss account, they apply for hunting and not civil year, and they have cash flow approach.

The financial data of South-Transdanubian Region counties (Somogy County, Baranya County and Tolna County) found in the game management reports were collected from the National Game Management Database's annual mass of facts (*Csányi*, 1999-2010) and were scheduled. The data are available from 1994 to 2009. The data of the 2010-2011 hunting year had to be transmitted until the 20<sup>th</sup> March, that is why they can not be elaborated.

At first we examined the structure of incomes and expenses in several counties, and the balance's figures from 1994.

We modified the available financial figures according to the inflation's yearly fluctuation (1994=100%). The calculation was disposed leaning on the International Monetary Fund's data (*IMF*, 2011).

## **RESULTS AND DISCUSSION**

### **The analysis of the income structure**

The paid hunting by foreigners and the related services were the half of the revenues, from year to year in all of the three counties (*Figure 2*). In Baranya County the shortage of the revenues due to less paid hunting by foreigners, was compensated by the higher rate of the related services.

The decreasing hunting revenue from foreigners were set off, in the three counties, by the increasing rate of national hunting, which is the biggest in Tolna County, while this county is the second in the revenues of paid hunting by foreigners too. The revenue of live game is not decisive among the incomes, the biggest is in Tolna County with 1.2% in average. The rate of the income from the harvested game fluctuated around 20% in Somogy County, 25% in Baranya County, 20% in Tolna County. The other incomes fluctuated between 11% and 15% in the three county.

### **The analysis of the cost structure**

Considering the expenses (*Figure 3*), the rate of wages is the lowest in Somogy County, an average 15.1%, the biggest in Baranya County, an average 18.4% and in Tolna County it is 17.6%, in average.

Figure 2

The average, max. and min. incomes rate of game management in South-Transdanubian Region counties between 1994 and 2009

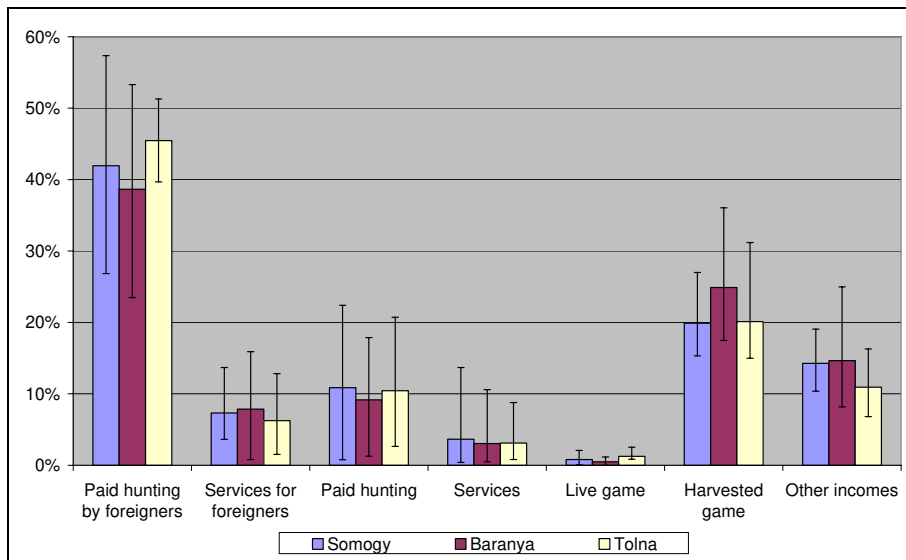
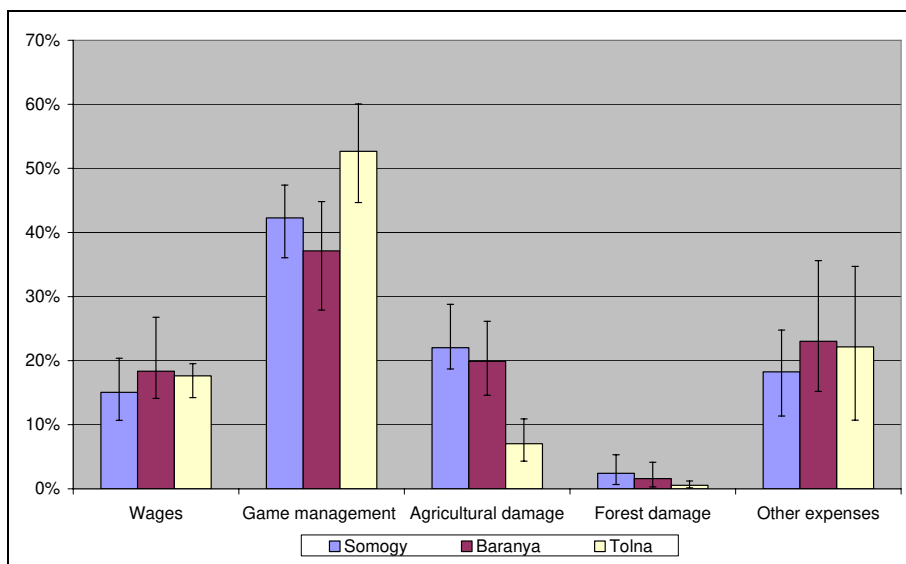


Figure 3

The average, max. and min. expenses rate of game management in South-Transdanubian Region counties between 1994 and 2009



Among the expenses, game management cost was the biggest, with 42% in Somogy County, in average 37% in Baranya County, in Tolna County it was the highest, in average 53%.

The rate of the agricultural damages caused by game is 22% in Somogy County in average, 20% in Baranya County, and in Tolna County it is much smaller - only 7%! The agricultural damage is caused by big game. Tolna County is better off because just a part of its territory is lived by big game (12 small game hunting areas), while the whole part of Somogy and Baranya County is game management division with big games.

In average, the forest damage was 2.4% in Somogy County, 1.6% in Baranya County and only 0.5% in Tolna County. The average of the other expenses was 18% in Somogy County, 23% in Baranya County and 22% in Tolna County.

### **The examination of the economic result on current price and considering the inflation**

From the distinction of the aggregated income and the aggregated expense the sector's economic result can be adjudged (*Figure 4*). Somogy County was firstly near by the deficit in 1997, and since 1999 it has been showing a deficit in every year, but in 2007 the loss was significantly lower. Although in a decreasing degree, Baranya County was profitable till 1999. Firstly it showed a deficit in 2000, after a profitable year, it showed a deficit in 2002, 2003 and 2004 (*without subsidies*); while it became profitable again in 2005, in the years between 2006 and 2009 the companies produced loss, except of 2007. If considering also the subsidies received, the hunting companies of Baranya turns to be profitable in three additional years: 2004, 2006 and 2008.

Tolna County's situation is the best, although its profit decreased until 2001; its hunting activity showed a deficit only in 2003 and 2006, and became profitable again in 2003 due to subsidies.

The losses in 2006 are explained by the expiry of the game management and hunting period of ten year. It was the last year of the earlier signed land rent contracts, and thus the companies tried to make the best out of their opportunities.

The figure of the incomes and expenses (*Figure 5*) shows well, that Somogy County's incomes and expenses are much higher than in the other two counties of the South-Transdanubian Region. In Baranya County, both the revenues and the expenses have been declining year by year since 2001, only in Tolna County the revenues tend to increase.

Considering the inflation it is apparent that Somogy County could not follow it in its revenues (*Figure 6*), opposite to Baranya and Tolna County. The rise of the revenue's trend is the biggest in Baranya County and in Tolna County it is low, while in Somogy County it is strongly decreasing (*Table 1*).

The increase of the expenses exceeds the inflation in the three counties. In Somogy County the costs increased at a smaller rate than in Tolna County. The increase of costs is mostly favours to Baranya County.

The rise of the balances' trend-lines is negative everywhere. The decline is the smallest in Tolna county, while it is the biggest in Somogy County, while in case of Baranya County it is slightly declining.

Figure 4

The game management balances of South-Transdanubian Region counties between 1994 and 2009

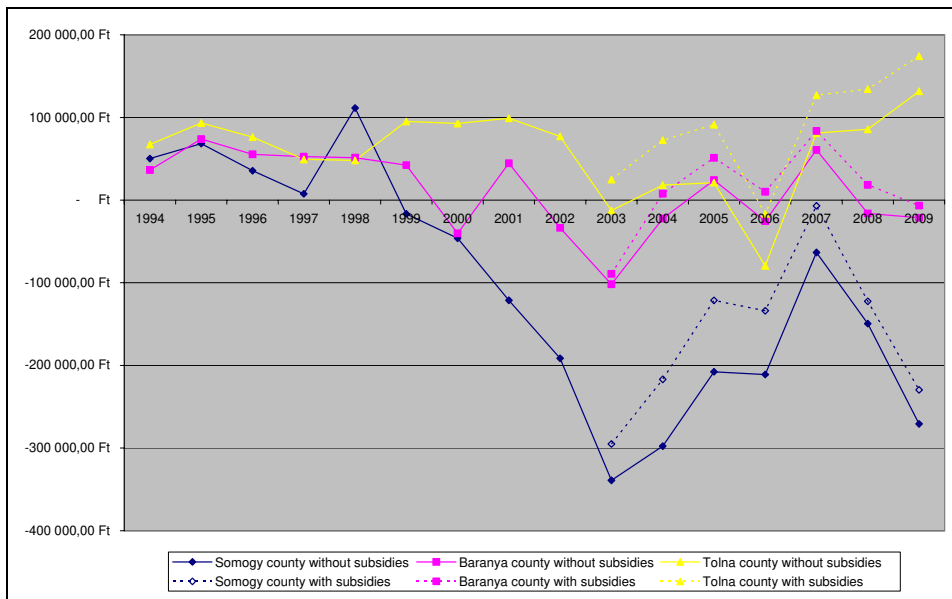
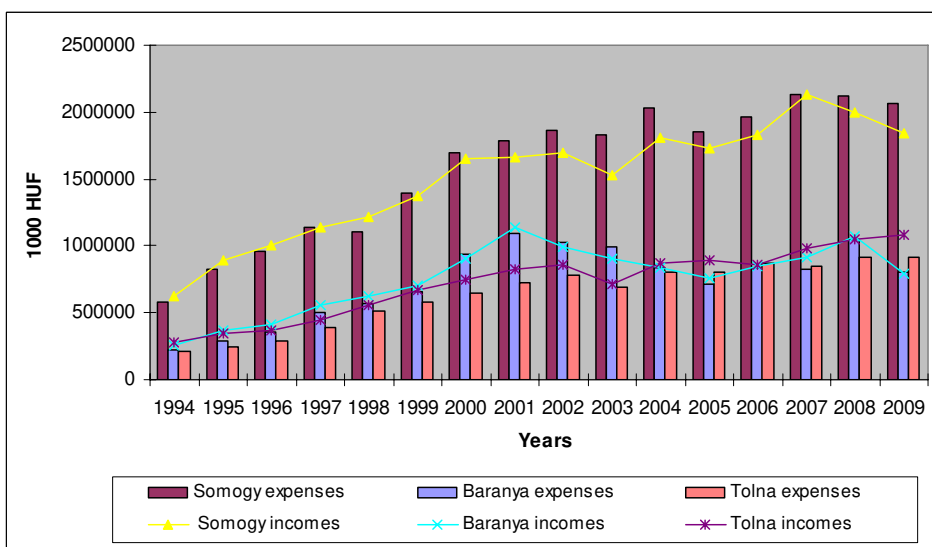


Figure 5

The summarized game management incomes and expenses of South-Transdanubian Region counties in current prices between 1994-2009



**Table 1**

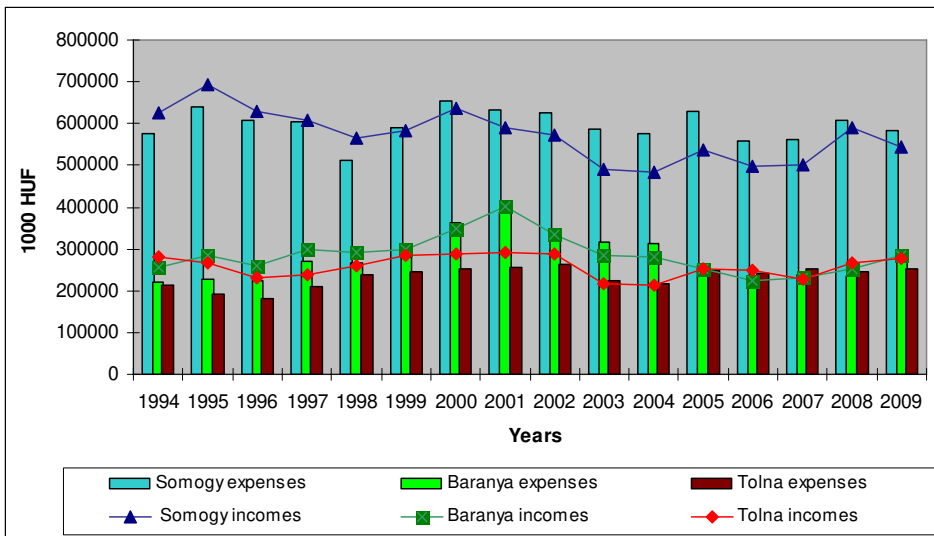
The average expected rise of the trend of analysed variables ( $\alpha=5\%$ )

	Somogy County	Baranya County	Tolna County
Expenses	100672 (a)	42152 (a)	48620 (a,b)
Revenues (incomes)*	83272 (a)	39449 (a)	51652 (a,b)
Game management balances	-17400 (a)	-2703 (b)	3032 (c)
Game management balances considering the inflation	-8080 (a)	-3436 (a)	-4015 (b)

\* P<1% significant difference

**Figure 6**

The summarized game management incomes and expenses of South-Transdanubian Region counties adjusted with inflation between 1994-2009



## CONCLUSIONS

The thrift of the game management decreased permanently on national level too; in 2003 the South-Transdanubian Region's three counties as well as nationwide. The sector closed with deficit.

In Somogy and Baranya County sources should be ensured for the preventing and decreasing of the damage caused by game.

In case of the revenues, the offered services should be developed in Tolna and Somogy County, they have unused spares compared to Baranya County.

The sector can not eliminate the effect of inflation. The reason must be found in that the recession in the European Union caused decrease of the solvent demand. For favouring the guests, the prices did not follow the rate of inflation. Another negative effect is the HUF/Euro exchange rate is unfavourably fluctuating.

For exact financial analysis, the balance and result accounts should be collected from the game farmers.

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## FINANCIAL EVALUATION OF FEASIBILITY STUDIES OF WASTE-WATER TREATMENT PROJECTS

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### **ABSTRACT**

*This paper was written with two major purposes. First, I intended to analyze the results of the financial evaluations of the latest waste water treatment projects. Secondly, I wished to draw a conclusion from the analysis and propose a new method for a working process. I dealt with 56 projects in 65 individual evaluations. A solution to the issue of environmental protection is essential for the Hungarian government, as the EU regulatory body has set a specific and rather tight deadline. The topic is interesting and significant, as the total applied budget was over HUF 150 billion; it is also quite relevant today: the first observed project documentation submitted to the Managing Authority was due by the end of October 2010. I carried out my analysis based on the documentation of the project evaluation. The investigated issues were in accordance with the official data sheet used in the evaluation process, such as: Mechanism and level of the collected fees, affordability; Compliance with the replacement policy; Financial sustainability of the projects; Verification of the economical analysis; Verification of the financial analysis; Compliance with social cost-benefit standards; Availability and reliability of own financial resources. According to the results of the analysis, the preparation of the projects is not satisfactory. To improve the quality of the project preparation and enhance the absorption of EU funds, the preparation processes must be amended, and urgently. At the end of my paper I recommend an alternative procedure for preparing the feasibility documentation and the cost-benefit analysis.*

Keywords: Waste water treatment projects, financial evaluation, preparatory methodology

### **INTRODUCTION**

The importance of the program, according to the foreword of the EU Call of Proposal is described as straightforward and direct. The public utility gap in 2004 exceeded 30 basis points, which should be decreased compared to the standard of the developed European countries. Only 62.2% of the country's cities and towns had a waste water network, and only 66.5% of the collected waste water was cleaned biologically (*Nemzeti Fejlesztési Ügynökség, 2010*). Between 2009 and 2013 under the application of KEOP-1.2.0, a 369-billion-Forint fund is available. The significance of this amount is great, as it equals to 1.5% of the total Hungarian GDP (*Nemzeti Fejlesztési Ügynökség, 2010*).

According to the recent rules calculation on the intensity of the subsidy must be based on financial and economic calculations. The output should refer to the result of the financial and economic analysis, based on the financial gap. There are three



major effects driving the cost benefit analysis. First, the size of the investment (and its amortization) and the yearly operational and maintenance costs. The type of the investment is normally supported with sufficient technical parameters, and should be chosen from the option analysis. Second, the fee policy, which reflects the disposable income of the population, so this is an affordability issue. Last, the financial gap, this is the financing ability or the bank loans, which support the required own liability (*European Commission, 2002*). These three factors should be balanced, none of them should have priority over the other two.

In my analysis I relied on the official documentation both at the European level and the national one. First of all, I investigated the professional documentations<sup>1</sup>. Secondly, I gained a relevant and up-to-date database from seventy-one individual waste water projects.<sup>2</sup> Initially I investigated this broad documentation, and I selected the relevant data into an own database.

## DISCUSSION

First and foremost, I intend to introduce the origin of the database. With the permission of the Environmental Development Department I could investigate its entire database of the recent waste water projects. The entire documentation was made available, including feasibility studies, cost benefit analyses, official project sheets and both external and internal evaluation sheets. From October 2010 until March 2011 altogether 71 project documentations were filed to the Intermediate Body for evaluation (*Table 1*). More than two thirds of the total applications were made in the KEOP-1.2.0/2F, which were carried out based on the first methodology. The second methodology is called KEOP-1.2.0/B. The procedure was amended and some additional templates were introduced.

**Table 1**

### Distribution of application types

Type	Sum	%
KEOP-1.2.0/2F	48	68%
KEOP-1.2.0/B	23	32%
Sum	71	100%

The coverage of the project represents the whole country both at county and regional level, although the weight of the regions is not balanced (*Table 2*). From the whole 19 counties only 16 were involved in the evaluation process (*Table 3*).

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<sup>1</sup>All the available Hungarian water treatment documentations and guidelines were investigated, and listed in the Bibliography.

<sup>2</sup> The Managing Authority let the latest database, and documentation investigated, which consisted 71 individual waste water projects. The feasibility study, the CBA and the evaluations were generally researched, but sometime the pre-feasibility studies or the documentations from the external and internal quality control were also involved.

**Table 2**

**Distribution of applications by regions<sup>3</sup>**

Region	KEOP-1.2.0/2F	KEOP-1.2.0/B	Sum
South Plain	20	7	27
South Transdanubia	6	3	9
North Plain	8	6	14
Northern Hungary		2	2
Central Tansdanubia	5	2	7
Central Hungary	5	1	6
West Transdanubia	4	2	6
Sum	48	23	71

**Table 3**

**Distribution of applications by counties**

County	KEOP-1.2.0/2F	KEOP-1.2.0/B	Sum
Bács-Kiskun	6	2	8
Baranya	1	1	2
Békés	7	4	11
Csongrád	7		7
Fejér	2	2	4
Győr-Moson-Sopron	1	1	2
Hajdú-Bihar	2	2	4
Heves		2	2
Jász-Nagykun-Szolnok	2	5	7
Komárom- Esztergom	3		3
Pest	5	1	6
Somogy	2	1	3
Szabolcs-Szatmár-Bereg	4		4
Tolna	3	1	4
Vas		1	1
Zala	2	1	3
Sum	47	24	71

The waste water treatment projects are of outstanding importance whether we can measure the concerned population and the applied funds or not. The size of the population involved accounted for almost 10% of the total population (*Table 4*). The funds under evaluation amounted to 195 billion Forints, which is approximately 1% of the country's total gross GDP. Considering this it is only one initiative of the several environmental protection issues, this program is one of the most important tasks to solve.

<sup>3</sup> DA- South Plain, DD- South Transdanubia, ÉA- North Plain, ÉM- Northern Hungary, KD- Central Tansdanubia, KM- Central Hungary, NyD- West Transdanubia

**Table 4**

**Features of examined projects**

<b>Region</b>	<b>Population covered</b>	<b>Funds applied</b>
South Plain	366 222	86 530 424 164
South Transdanubia	56 793	9 736 399 382
North Plain	148 458	30 728 274 088
Northern Hungary	5 269	2 217 958 824
Central Tansdanubia	135 344	15 555 779 188
Central Hungary	193 503	32 348 461 800
West Transdanubia	78 707	18 405 053 465
<b>Sum</b>	<b>984 295</b>	<b>195 522 350 911</b>

In my research I investigated the results of the project evaluations (Table 5). The quality of the projects can be measured directly from the evaluations. The evaluation activity was made by external experts. In the evaluation sheets all the major facts are described and a proposal on the support is made to the decision makers (Evaluation Committee). I only concentrated on the financial and economic analysis, which consisted of six plus two major issues. According to the major issues the proposal of the support can be positive, positive with reduction in the investment costs or negative. In certain cases the Evaluation Committee can send the project documentation into the evaluation process again to help them revise some critical points which have been discovered.

**Table 5**

**Quality of projects<sup>4</sup>**

<b>Number of projects</b>	<b>Checking the conditions of state support and cofinancing (max. 10p)</b>											<b>Sum</b>
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	
<b>Checking the financing of the project (max 5p)</b>												
0	1	1	2		2		1					7
2	2	3	2		1	1	1					10
3		1	1			5	2		1		1	11
4	1		1	2			3	2	1		1	11
5	1		1	3	4	7	5	2	2	3	4	32
<b>Sum</b>	<b>5</b>	<b>5</b>	<b>7</b>	<b>5</b>	<b>7</b>	<b>13</b>	<b>12</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>6</b>	<b>71</b>

39 projects (54%) out of the total 71 were granted a better than a mediocre evaluation regarding both the conditions of the state support and the financing

<sup>4</sup> According to the governing guidelines. The Nemzeti Fejlesztési Ügynökség (2009): Módszertani útmutató költség-haszon elemzéshez KEOP támogatáshoz, and the Nemzeti Fejlesztési Ügynökség (2009): Útmutató projekt adatlap kitöltéséhez a Környezet és Energia Operatív Program 1. 2. 3. és 6. prioritásainak összes konstrukciójához.

ability. Unfortunately the total picture worse, than it seems at first sight. Only 17 projects (24%) received positive decision from the evaluators (Table 6). The hypothesis to be proved is the following: changing the preparatory methodology can ceteris paribus enhance the quality of the projects.

**Table 6**

**Successful project status**

Number of projects	Checking the conditions of state support and cofinancing (max. 10p)						Sum
	5	6	7	8	9	10	
Checking the financing of the project (max 5p)							
2		1					1
3	1					1	2
4			2	1			3
5	2	2		1	2	4	11
<b>Sum</b>	3	3	2	2	2	5	17

24% of the projects were supported by the evaluators. Under the first preparatory methodology KEOP-1.2.0/2F 10 projects (21%), while under the second preparatory methodology KEOP-1.2.0/B 7 projects (30%) were awarded positively. The result from the amended methodology is significantly higher, so the type of the preparatory methodology does make a difference.

The identification of the weak points of the feasibility studies including the cost benefit analysis will help us concentrate on the necessary changes of the processes. In accordance with the aspects of the official evaluation there are six main issues to investigate about the financial and economic points of view, and two additional issues about the financing. The evaluation process is divided into two parts. Firstly, the technical part is investigated. I did not include this part in my research as it is independent. Secondly, the financial and economic evaluation which determines the long-term financing sustainability.

The first aspect to consider is the fee policy. Not only the mechanism of the collection is important, but the level of the fee has to be taken into account. The extent of the fee collected refers to the disposable income of the population. The poorer the population is the lower investment size can be implemented. Here we can identify a bottleneck. The affordability defines the size of the investment, which should be supported with a feasible technical implementation. Only 42% of the total projects met this standard (Table 7).

The replacement policy is to be regarded when the long-term sustainability is in focus. According to the CBA standards no amortization is taken into account when calculating the financial gap. The reasonable replacement costs have to be calculated instead of the amortization. According to the standard the full amortization has to be covered by the fees however it can be built in fees later on. In the average lifetime 50% of the total amortization has to be included in the fee, yet at the end of the measured period (30 years) the fee is to cover the complete

amortization in the given year. The long-term sustainability was met only to 38%, therefore this aspect needs strict monitoring (*Table 8*).

**Table 7**

**Collected fees and affordability**

	<b>KEOP-1.2.0/2F</b>	<b>KEOP-1.2.0/B</b>	<b>Sum</b>	<b>%</b>
Status:	OK			
Sum	22	8	30	42%

**Table 8**

**Replacement policy compliance**

	<b>KEOP-1.2.0/2F</b>	<b>KEOP-1.2.0/B</b>	<b>Sum</b>	<b>%</b>
Status:	OK			
Sum	18	9	27	38%

The financial sustainability refers to the financing. According to the regulations the cumulative free cash-flow always has to be positive. Normally every study initially complies with that standard. Nevertheless the mistakes which are made have negative effects on the stock of cash. This aspect is not a driver variable, rather a result of other aspects. It is clear the low level of 25% compliance is derived from the accumulation of the latter mistakes (*Table 9*).

**Table 9**

**Financial sustainability of projects**

	<b>KEOP-1.2.0/2F</b>	<b>KEOP-1.2.0/B</b>	<b>Sum</b>	<b>%</b>
Status:	OK			
Sum	14	4	18	25%

Meeting the financial analysis standard is the least difficult aspect among the inspected ones. The template which was introduced in the second preparatory methodology supported the project owners, and enabled them to avoid potential mistakes. The implementation of this aspect is typical area which can be enhanced through professional support, such as templates and guidelines (*Table 10*).

The economic analysis is the most important part in terms of the decision-making. Unfortunately it is rather intangible, which makes it difficult to handle. Well-based studies about the possible methods and acceptable values of variables can support both the preparation and the evaluation work. In this sense the regulations are obvious, and the result or the quality of this section is above average (55% and 61%) (*Table 11* and *Table 12*).

**Table 10**

**Verification of the financial analysis**

	<b>KEOP-1.2.0/2F</b>	<b>KEOP-1.2.0/B</b>	<b>Sum</b>	<b>%</b>
Status:	OK			
Sum	23	6	29	41%

**Table 11**

**Verification of the economic analysis**

	<b>KEOP-1.2.0/2F</b>	<b>KEOP-1.2.0/B</b>	<b>Sum</b>	<b>%</b>
Status:	OK			
Sum	26	13	39	55%

**Table 12**

**Compliance of the social cost-benefit standards**

	<b>KEOP-1.2.0/2F</b>	<b>KEOP-1.2.0/B</b>	<b>Sum</b>	<b>%</b>
Status:	OK			
Sum	31	12	43	61%

The financing part of the feasibility study is rather confusing than simple. The result of the evaluation does not reflect to any problems, however according to my personal experience certain general and essential mistake can occur during the contract closure stage or in the implementation period. First of all, financing the necessary own part can be provided from the project owner’s budget or from bank loan. The latest changes in state funding of the local governments points out that changing the frame regulation can cause serious problems in the funding. An alternative solution can be the binding offer from the bank financing the projects. In the current methodology the banks are external stakeholders, and they are not involved either in the preparation or the evaluation (*Table 13* and *Table 14*).

**Table 13**

**Reliability of granting own financial resources**

	<b>KEOP-1.2.0/2F</b>	<b>KEOP-1.2.0/B</b>	<b>Sum</b>	<b>%</b>
Status:	OK			
Sum	29	14	43	61%

**Table 14**

**Availability of granting own financial resources**

	<b>KEOP-1.2.0/2F</b>	<b>KEOP-1.2.0/B</b>	<b>Sum</b>	<b>%</b>
Status:	Ok			
Sum	34	20	54	76%

**CONCLUSION**

I have divided my conclusions into three certain specific parts. First, it is proved that amending the methodology of the preparation can enhance the quality of the filed documentation. The changes introduced in the second methodology were right, yet insufficient. According to the results of this study, the bottlenecks are as follows:

- the affordability of the fee policy linked to the technical part (size of the investment),
- the financial analysis referring to the replacement policy and the operational costs,
- the financial sustainability which is evitable for long-term sustainability.

There are certain assumptions which have to be tested, or confirmed by impact studies. The first and most important one is that compiling templates, guidelines and standards facilitates the improvement of the projects. The deeper and closer the Intermediate Body can support the preparation process the less mistakes will be made. The Intermediate Body needs to act as a professional advisor collaborating with the project holder. At the start of the process particular definitions are to be prepared, as a limit of the investment size calculated from the population's financial affordability. The financial variables are the drivers. The technical planning has to comply with the results of the financial analysis. Based on the research the importance of the economic analysis should be increased as spending money on projects which are not established properly is wasteful.

The research does not reflect any problems in connection with the financing part. According to the process we can only make an assumption about this part therefore, it is advisable to carry out further investigation in the contracting period, or in the implementation period. Unless we can examine the latter sections, we cannot find the right solution.

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## ECONOMIC AND SOCIAL RESPONSIBILITY OF FINANCIAL AUDITING: A NEW DIMENSION

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### ABSTRACT

*The current financial crisis has a classic three-dimensional structure of responsibility. Creditor banks must ensure the money supply, aggregate demand for loans to households in debt, and monetary authorities (supervisors, governments). We consider it essential that the auditors' and any operator's responsibility extend not only to the economics of profits and losses but also to society, be it local, national, or global. As many banks are global operators, financial auditing must also have a global dimension. In the fourth year of the sub-prime crisis, auditors' responsibilities have shifted to a new dimension. In light of this, our presentation is mainly focused in the European Union's Green Paper titled, "The Audit Policy: Lessons from the Crisis." This report recommends more transparency and encourages a return to substantial survey. In it, auditors are exhorted to professional scepticism. It is necessary to enhance dialogue between auditors and banking regulatory authorities. Audit of European reform, however, may not be adequately effective in global markets, since international companies and global operators are not subject to it while outside the EU. As such, we will present examples of related legislation from overseas, particularly the now-completed inquiry report of the U.S. Congress. There is no doubt that responsibility for auditing companies has exceeded the corporate economic area and national boundaries. International economic performance and confidence in the wide international markets has begun to show the effects of new auditing policies. This presentation is about the content and quality challenges involved in changing auditors. The global economy is a global challenge to which all auditors must adjust if they are to do their job of strengthening and securing global markets.*

Keywords: CSR of banks, subprime crisis, auditing, EU Green Paper, overseas practice

### INTRODUCTION

The undertaking responsibility is in a classic sense the mixture of such business behavior as well as comprehensions, which integrates not only the inside undertaking economic factors in the spirit of sustainable development and business ethics, but also environmental, social and human rights considerations. The undertaking responsibility includes the comprehension of the operation of the company, its ethics and taking the interests of the stakeholders into comprehensive consideration. Special enterprises are the institutional participants of the money-, capital-, and currency markets. Until the existence of the Bretton Woods system, the spending of the public funds was more comprehensive. Today the possibility of the control of the global

financial profit centres is remarkably restricted. In the economic policy authority of the Washington Consensus System the globalization and the financial standing of the financial markets has grown to considerable size. The free movement of the capital and the overshadowing of the control processes have made the financial institution sector into individual sphere of power. In addition to incurring debts of the governments, the credit dependence of the local governments and even after the millennium of the households has become a significant factor. At the same time, the economic power of the financial aggregates in creditor position would show larger responsibility. It is desirable for the future that the social welfare factors should strengthen in the business policy and in responsibility taking of the enterprises, in particular banks. According to our judgment, in the process of world-wide growing economic crisis of the American mortgage market, there is a new requirement from the banks that they should not cause any loss with their operation for the society and the budget as well as they ought to maintain their classic social role (environment protection, support of the poor and the sport).

### **The specific perspectives of the social responsibility of the financial institutions**

General public interest surrounds the stability of the system of the financial institution. It is indispensable for the stable operation of the economy that the banks are admitted to the inhabitants' and the national and local government's confidence, their operation and their safety level should be known for the society and the participants of the economy, according to the Directive 8. of the European Union and the definition of the Article 1 (13) of /22/EGK Council Directive. For this reason it is not possible to compare the situation of banks with other enterprises, so it has very stressed significance in the way the banks treat their financial stability, and the supervisions control the financial stability of the banks. To the extent the activity of the financial institutions has been becoming more and more combined in relation to both domestic and international aspects, the supervision and the external auditor has to face with higher requirements. The auditing of the financial companies were regulated by the attitudes of the International Auditing Practices Committee (*IAPC*) working under the International Federation of Accountants (*IFAC*) in order to increase the unification of the auditing methods and its relating services. Besides determining the physical safety of the monetary instruments, it is an essential task to control the different types of banking transactions as well as electronic data processing. The decentralization of the eligibility for decision making of the branches and subsidiaries because of the geographical problems, in many cases the location of the regions of the world, the separation of the accountancy and the supervision functions make difficult to prepare the financial and the accountancy reports of the banks. In the last decade the so-called items out of the statement have become widespread considerably, in other words those commitments of banks, which are not considered with money circulation at the time of their emerging, by all means no entry can contribute to them (in general short-term and not in all cases), so their auditing examination and judgment is also complicated. At the same time their financial influence effects the statement of the banks negatively in general if it appears. The investor's expectations focus on minimizing the risk and maximizing the

income. Taking into consideration that the taken risk and the required profit are in ratio, those divisions have been established moreover, they have become independent components, whose business activity relates to transferring as well as undertaking risk. The unrestricted multiplication of money, the unlimited transferring of the loss of the banks and the general establishment of the workout companies cleaning the statement of the parent company finally precipitate into crisis the North-American mortgage markets, the banks and the economy, which has given rise to economic crisis all over the world. The recession gives good chance to think over the tasks and the responsibility taking of the participants of the financial market.

### **Crisis and Responsibility**

One of the main conclusions of the crisis originating from the Anglo-Saxon markets is that the financial markets can not be left themselves. The self-regulating ability of the markets, as an axiom, obviously failed. In addition, as a consequence of market liberalization and deregulation dating back to 1970s, they have become serious destabilizing factors.

In professional circles, three responsibility groups appear typically relating to the crisis (*Lentner et al.*, 2010):

- banks as well as financial institutions representing the supply side of the financial markets,
- borrower companies, especially households representing the demand side of the financial markets,
- the government creating the rules and determining the institutional background of the financial markets, supervision and central bank as the monetary and fiscal authority.

The liability is common, however, it is essential to emphasize the banking sector, owing to the fact that in the first place, the responsibility of the banks and financial institutions is to maintain the financial stability. The responsibility inside the bank is restricted to the owners and the managers commissioning by the owners as the main aim of the bank is to raise as high profit as possible. The decisions made in the financial institutions influence the society and the environment since the financial processes help the flow of products and services.

The economic companies, especially the financial enterprises are such institutions, which with their own business activity and individual path is forced to take determine the surrounding people's life. The company has legal authorization to run their business solely in its own interest in every case without taking into consideration that it can cause harmful consequences for others. It means that the economic companies have legal authorization to protect their own interests without taking into account the damage causing to others.

The conglomerates with their power over the society and the people have become serious danger (*Bakan*, 2005). The rules laid down by the government are followed, depending on the governmental power and the clout power of the company. The weakening of the government and the strengthening of the international companies, mainly the banks characterized the last decade.

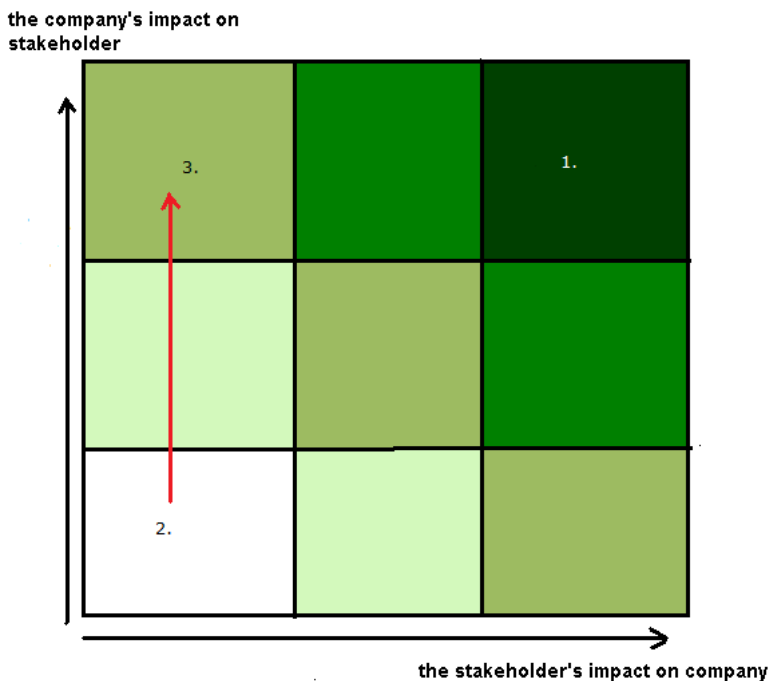
The crisis beginning from the mortgage markets brings the problems to the surface with thunderous applause. Not only the traditional support of the environmental protection, family-supporting workplaces, and flexible workplace providing for parents should be taken into account in case of social taking responsibility, but also we need to see the establishment of the future society, protecting democracy and finally, we should avoid the collapse of market economy system. In the sustainable economic system the social responsibility of a bank is not only to support the sport clubs, socially disadvantaged pupils, but also it needs to help financing green technologies, and it also should assist in providing careful credit for households as bank clients, small-and medium sized enterprises, for the national budget with these bank clients the institutions of the economic system, democracy and the life chances of the future generation can be modified.

The circle of stakeholders provides little information about the responsibility taking of the banks. The relationship of stakeholders is necessary to examine from two points of view:

- how much is the influence of the interested individual on the company (*Figure 1* horizontal axis) and
- how much is the influence of the bank on the interested individual (*Figure 1* vertical axis).

**Figure 1**

**Matrix 2 of Stakeholder**



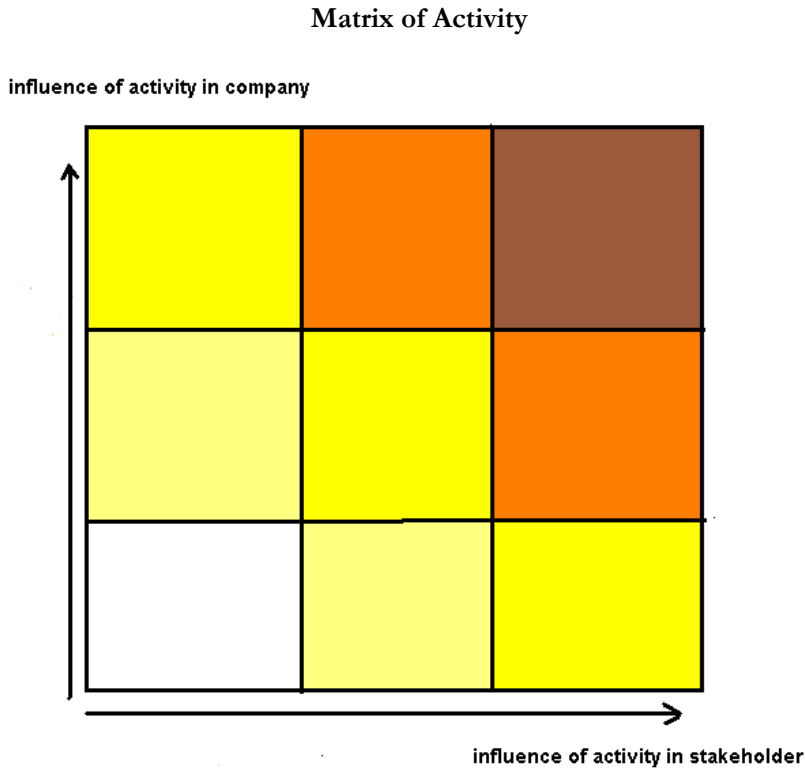
According to our judgment, the banks make good decision if they are on the point of making a more responsible activity with the stakeholders, who are in the most highlighted part, namely in the darker square on the graph. The clients (1.) claiming loans for flat and house make significant effect on the banks and the bank also makes essential influence on the families interested in real estate development, for this reason the social responsibility of the banks is more expedient and efficient if they focus on them. Thus, it has higher values as if, for instance talented socially disadvantaged pupils would be supported by the banks, where the common dependence is much lower, in other words, the stakeholder is located near the origin (2.). Of course, this question should be treated shaded since in case of families with low budget, the further studies of talented children would be failed therefore, the stakeholder is placed higher on the vertical axis, into the darker field (3.).

The responsible business activity of a financial institution can be varied. It can focus on internal or external clients, it can connect directly to the business activity of the bank and it can be independent from it. The CSR transaction relating directly to the activity of the bank means ensuring financial-banking knowledge according to the borrower's level of knowledge, which can decrease the proportion of the non-refunding credits and it establishes stability in the client's management. At the same time, it is not so associating with the activity of the bank, for instance providing food ticket. It makes difference on whom the responsibility of the bank focuses, however it is also determining that how much is the importance of the activity in the life of bank and the interested individual. Generally speaking, the more valuable the activity is the higher influence it has on the company and the stakeholders. In the case of a bank, responsible activity means also if the bank takes the responsibility for copying the certificates in two-sided, however, its significance is basically less than organizing course for its clients about the development of the financial culture. By the assessment of the activity, we need to be careful owing to the fact that a CRS activity with common content can have different effect in a financial institution and in a cement-plant. The company makes the right decision if it chooses the activity that can be seen in the darker square on the graph, in other words, the work of CSR stands closer to its basic activity and its clients (*Figure 2*).

The "best practice" means that the most common operative perspective of banking responsibility taking. Getting to know and accepting the practice of the top-ranking can provide possibility to develop and close up for institutions with little theoretical knowledge. It provides excellent occasions for different tenders, charges, conferences and international musters. The particular interested individuals and fields are placed in various points of the map of the stakeholders, so the responsible activity can not be adapted automatically. What is natural by one type of financial institution, it suits well the activity as well as strategy of the company; it has no sense in other type of institution. The real estate market counselling for the clients matches into the CSR activity of a mortgage bank, at the same time, it seems to be not expedient by financial institutions experienced in leasing cars. The other factor that we need to consider is that if the bank arranges everything as the others, it can reach the same results in the best case. If the banks copy the best practices, they can stabilize their position at most. The adaptation of good practice can be successful only after

through theoretical foundation. The owner of the enterprise, the management employed by the owner, the supervision and the auditor play emphasized role in the establishment of the practice of responsibility taking of the bank.

**Figure 2**



**The connection between the CSR banking activities and the auditing**

It is questioned in many places whether the banks, security funds, credit certifiers, supervisions and central banks have done through job. At the same time, not enough attention was paid to how the auditing would be able to improve the financial stability. The Green Paper of the European Union aiming at developing the quality of the work of the auditors raises the role of the auditors in the emergence of crises inevitably. So, the responsibility taking of the three in the report mentioned banks, borrowers and regulating authorities are expanded by the fourth, the auditors. It seems to be doubtful if in the last decades the auditors rated the statements of the banks in a real through way. Have the regulating authorities, where several auditors work, really raised the necessary attentions within their professional competence? Between 2007 and 2009 numerous banks showed significant loss in the outside and inside position of their statement. These circumstances raise that not only how the auditors would have been able to provide

opinion about the previous period for their clients, but also it questions the appropriateness and aptitude of the present law. It seems to be practical to think over the general regulation of the money market, the rulings of the auditors as well as the practice of the auditing since the responsible decisions of the banks, the financial reports provided for the participants of the market are certified with the report of the auditors. Thus, the decisions of the bank in the sphere of corporate responsibility taking was provided by the opinion of the auditors for the clients claiming information. The members of the market expect more responsible and more circumspect behavior from the banks and the auditors. It is a requirement that besides supervision and bank leading the auditing should also be the basic element of the financial stability. The auditing placed on new methodological bases plays crucial role in rebuilding the general and market trust and it protects the investors and decreases the capital cost of the companies. With regard to finding the through and losing management, the preventive auditing can decrease cost of the company spent on its loss, the cost of the government budget as well as the social costs. The responsibility taking of the bank means more than the classical stakeholder model, it is also represented in practical form in order not to cause economical problems with fictive economic situation, and not to spend public funds for consolidating the financial institutions. The auditor employed by the owners is practically the supervisor of the trustee management, who assess the regulation employed by the company, the application of requirements, the use of corporate input and its performance. In case of auditing the social responsibility also appears. The auditing companies work in a proper way if they assess the performance and reports of their clients. With the help of this, the receiver of the external information can establish market relationship with the companies and banks controlled by the auditors without economic loss. The global participants of the auditing market (big4) are able to take social responsibility for forming the financial culture, the stability and their responsible management of the controlled enterprises relating the closest to them, international banks, multinational companies. With the help of professional auditing and from this resulting valid corporate information, the auditing company can reach higher social profit as if it would support animal alms-house from the money. See the logics of the matrix of stakeholder and activity. In this globalized world not only the primary, secondary and tertiary branches have been-and in the former we think of the financial institutions-globalized in the last decade, but also the auditing. The International Standards on Auditing have become ready-made product. In the world the unification of auditing practices can be realized. The consultation within the European Union can not be successful in itself if the overseas experienced are not applied. With regard to the financial crisis, there was a process of making clearer the responsibility spheres in order to determine the lack of possible responsible banking behavior in the United States, since it was the origin of the financial crisis.

According to the US Congress Report, the crisis could have been avoided. (*US Congress Report*, 2011). The Congress Report indicates that the cause was the mistakes in the financial regulation as well as in the superstition, which have led to the weakening of the stability and the national financial sectors. The dramatic

failure of corporate management and the risk management have become crucial factors of the crisis. The most varied combination of the exaggerated credit borrowing, the risky investments and the lack of seeing through have drawn the financial system into crisis. The items outside the stock exchange and the banking statement also played significant role in the development of the crisis. The credit rating institutions were indispensable cog-wheels of the financial weakening. Last but not least, in the emergence of the financial crisis the lack of ethics and countability represented determined factor. The causes of the crisis in the Congress Report clearly include the irresponsibility of the banking management, the lack of regulation, however it means indirectly the responsibility of the auditors by the credit rating companies. The main responsibility taking of the banks is to arrange stable, calculable, clear flow of money as well as the transmission role. As these institutions are in the increased interests of the public, the content of their reports are provided for the clients demanding information through the procedure of opinion giving from auditors. It happens that the responsibility of not only the banks but also the auditors appear in the development of financial crisis.

## **CONCLUSIONS**

Besides the traditional corporate responsibility taking, a new liability taking of the banks, financial institutions must be defined because of the financial crisis. Apart from the traditional responsibility taking, the liability for the clients of the financial institutions, enterprises, families and the national budget raises its value. Summing up, the bank determined as the institution ensuring mainly the stability of the national economy and the international financial sector can do its bets with calculable operation and with the application of credit techniques providing long lasting maintaining for its clients and with giving financial experience relating to responsibility taking. So, the partial banking responsibility taking dimension expanding sub-parts replaces the simultaneous assurance of the responsibility for society, national economy even international economy.

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## FINANCIAL PROBLEMS OF THE CULTURAL PROJECTS IN SOUTH TRANSDANUBIA

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### **ABSTRACT**

*Accession to the European Union has created numerous opportunities for economic operators, including local governments, to carry out development plans they had been deferring for lack of funds. The seven years since Hungary's accession in 2004 is a large enough period from which to draw conclusions on the use and usability of the Structural Fund's resources. A new study has published the finding that EU resources do not reduce and may even increase the differences between villages and regions. In the present study we examine the financial problems of cultural projects implemented by local government between 2004 and 2006 in South Transdanubia.*

Keywords: cultural projects, EU, financing

### **INTRODUCTION**

#### **Cultural projects from EU sources**

The cultural sphere can get at sources from the Structural Funds of the European Union. This source is not negligible because expenditure between 1989 and 1993 from the Structural Funds was 83% of the total cultural budget (Rónai and Zongor, 2003). The Structural Funds support the culture as a tool for development, especially in the context of regional and rural development. In this term the Union support culture as a factor of this development like employment and culture, cultural tourism, social integration, service, preserve Europe's cultural heritage, etc. (Zongor, 2004).

### **DISCUSSION**

#### **Cultural projects in South Transdanubia**

In this study we regard a program as cultural in which the European Union supports cultural institutions. In addition programs are considered as cultural as well through which the developer is not cultural institution (such as in the previous case) but there is cultural essence of the program, like revitalization of villages, cultural tourism, rural visitor centres, etc. According to the above mentioned definition we should examined the following priorities of the Hungarian Development Plan between 2004 and 2006:

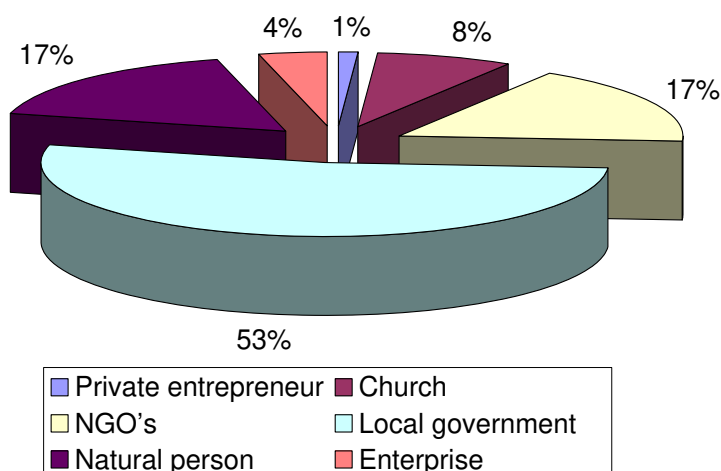
- AVOP 3.1 – The expansion of rural income opportunities
- AVOP 3.4 – Village development, protection and conservation of rural heritage

- AVOP 3.5 – LEADER +
- ROP 1.1 – Development of tourist attractions
- ROP 2.2 – Rehabilitation of urban areas

There are 165 cultural projects in South Transdanubia. The projects can be shared in eleven thematically categories like: Other tourism, Renovation of buildings, Festivals, Handicraft, Brochures, Library, Common space, Museum, Camp, Development of the town’s picture, Church (*Figure 1*).

**Figure 1**

**The distribution of the recipients of the winner projects**



It's apparent, that local government played a significant role in the period between 2004 and 2006 (83 realized projects, 50.3% of all projects). This overrepresentation of the local government is understandable, because in the examined villages and towns the local government plays the most important role in public life, also as the biggest employer or the institution realized the most investment (*Figure 2* and *Figure 3*).

Among the projects of the local governments there are only two types of sources: AVOP 3.4 and 3.5. The maximal rate of support was 85%, but the size of the projects were different in the two cases. By AVOP 3.4 it was between 1.5 and 60 million HUF and in the other case between 150 thousand HUF and 5 million HUF. The reason for this: AVOP 3.5 was the LEADER+ program of the EU in Hungary. And as it's well known the LEADER projects concentrate on the smaller investments.

One of the biggest problems for the local government is to provide deductible for their projects. The available own contribution also determines the volume of the available supports from the EU. Beside the own contribution the project coordinators should manage the problems of post-financing. In addition these projects are net-oriented so they should provide also the amount of VAT (*Figure 4*).

Figure 2

The distribution of the supports from AVOP 3.4 (pieces)

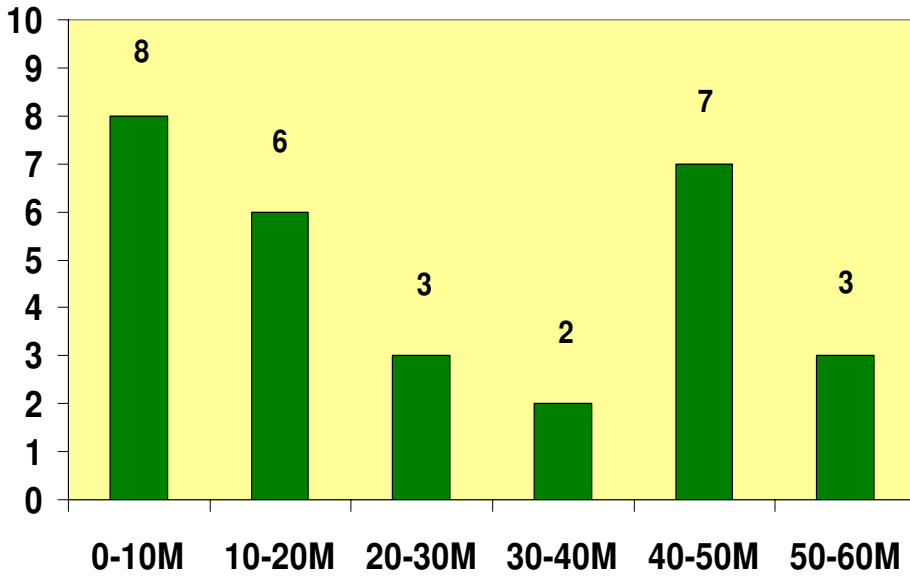


Figure 3

The distribution of the supports from AVOP 3.5 (pieces)

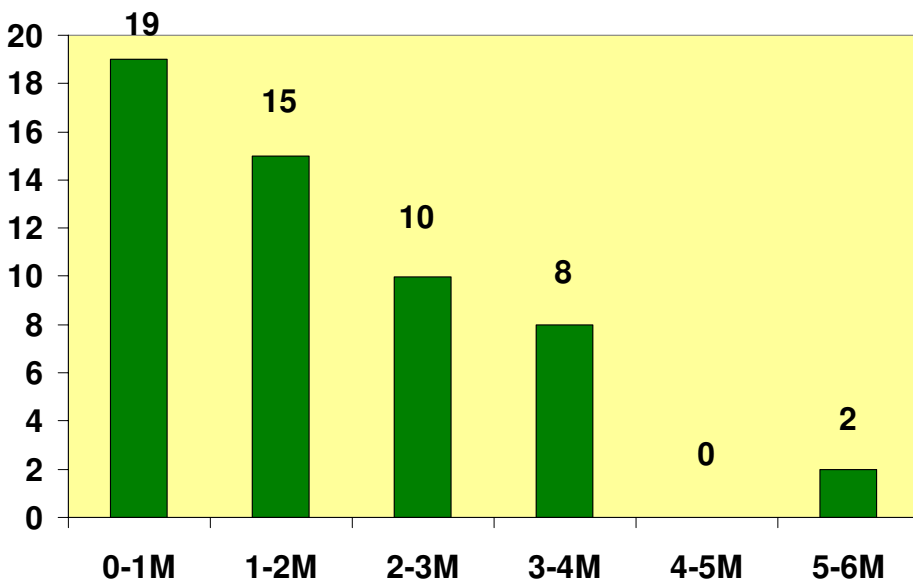
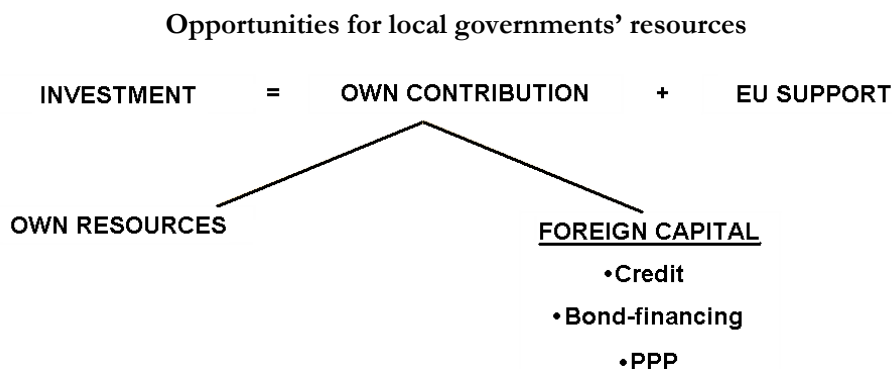


Figure 4



Beside the usual opportunities there are some new elements in the topic of the local governments deductible providing. Over the time there are some new ways to find sources for the own contribution. These are:

- A credit- and bond financing program for local governments for infrastructural investments (*Table 1*)
- EU Deductible Fund

Table 1

**Main differences between credit and bond-financing**

Credit	Bond-financing
Public auction	There aren't public auction
Limited appropriation	Unlimited appropriation
Risk of non-repayment is lower	Risk of non-repayment is higher
Opportunity for prolongation	Fixed capital- and discharge redemption

**Experiences of the interviews in South Transdanubia:**

- an even wide range of solutions
- smaller towns and villages: the only opportunity is credits
- bigger towns and cities: bond-financing
- the suppliers credit is widespread
- VAT-paying from other credits

**CONCLUSION**

The examined type of projects has a reason for the existence in the region. We can say that one possible way for rural development can be a culture based strategy. However, we believe that also in the future it's going to cause problems for the smaller, resource-poor local governments to raise funds for down payment or to manage the problems of post-financing. The new credit programs connecting to the

new development plans (*ÚMFT* and *ÚMVP*) and the bond-financing programs are forward-looking initiatives to solve the problems. However we should not forget that by the case of cultural projects the social utility and the project's impact for life quality are more important than its economic returns. In this term these projects will be always special compared with other projects financed from European sources. That's why we suggest a special treatment in the framework of special operational program for the cultural sector in the future. But we believe that in the new programming period starting in 2013 there is not reality for this in Hungary.

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## SUSTAINABILITY OF ADVERTISING EXPENDITURES AND ITS RELATIONS TO MARKET STRUCTURE

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### **ABSTRACT**

*Advertising has an important role in demand-generation and in market processes, and it has become a core asset of competition in developed markets. Because of this, both the amount and the growth of advertising expenditures have been significant in developed regions of the world. In consequence of the economic crisis, advertising expenditures decreased quickly and considerably, however, the recovery of advertising investments occurred in a short time. Yet the efficiency of advertising has generally declined, as there is over-advertising in many markets and only a little part of the advertisements can actually affect consumers. It is especially important to scrutinize advertising related to industrial organization. The relationship of advertising and competition is contentious. Some professionals think that advertising has an anti-competitive effect and that it makes market structure more concentrated. However, others disagree with this view. A new approach emphasizes that it is market power that affects companies' advertising expenditures. The role, the influence, and the financial investment in advertising are different in different market structures. Advertising is unnecessary in a perfectly competitive market where companies operate in oligopoly. In a monopolistic market companies spend large amount of money for advertising, as it supports product differentiation and in such a market there exists higher elasticity of demand with respect to advertising expenditure.*

Keywords: advertising, advertising expenditures, market structure, competition

### **INTRODUCTION**

Advertising is a communication activity tending to potential and actual consumers which role, characters, financial value and effect are determined considerably by the competitive environment and the market structure in which the company operates. From the approach of marketing advertising is a form of promotion, so a communication asset. In this way marketing literature dealing with advertising is basically about what advertising strategy and program are required to reach target market effectively and efficiently. In connection with this the core points of studies and analyses are that what advertising and message would be expedient to inform and persuade consumers and which medium is appropriate for this. Furthermore also the evaluation of advertising efficiency is related to this.

Companies compete by many factors and assets in the market. In industrial organization the competition by price and output levels is the basic form of market competition among companies. The importance of this is embodied for example in

the oligopoly models, Bertrand, Cournot and Stackelberg models, which are rested on different conditions.

By development of economies and markets other assets of competition have appeared and become more important. Advertising and product differentiation belong to these, furthermore such intangible assets like research and development, know-how and brand. The application of these assets is a more complex work and their effects on consumers, competitors and competition itself can be predicted, determined and modeled much more difficult. In this paper I deal only with advertising. Related to this it is important to underline that *Schmalensee* (1982) argues that the most of the publications in this topic emphasize that *advertising competition and the other forms of non-price competition are weaker than the price competition, according to that excess profit is less uncertain*. In this way it would also mean that market share is more sensitive for price differences than for differences of advertising expenditures. However, it is probably typical for many markets, in certain markets where consumers' brand choice is greatly affected by advertisements and slightly influenced by prices the price competition is prospectively weaker than the advertising competition.

Economically *advertising is one of the non-price assets of competition* in this way. In this paper I use the concept of advertising in this meaning and based on this approach. *The purpose of my study is to underline and analyze the core of the relationship between advertising and competition, furthermore to point out the role, the characteristics, the financial value and the effects of advertising in case of the different types of market structure.*

Studying advertising as a non-price asset of competition is important not only because of its determinant role in demand generating in developed markets and its extremely complex effect mechanism but also since *the value and the growth of advertising expenditures are significant*. Before the economic crisis started in 2008 the value of advertising expenditures increased worldwide by 7.3% in 2006 and 6.7% in 2007. In 2007 the amount of advertising expenditures came to 0.88% of GDP worldwide that made totally 482 047 million dollar. In consequence of the economic crisis the annual growth of advertising expenditures was only 0.8% worldwide in 2008 and advertising spend reduced by 10.6% in 2009. The fall of advertising investments was the strongest in Europe and in North America (*ZenithOptimedia*, 2008; 2009; 2010a). The importance of advertising in market processes appears in that in consequence of the economic crisis there was a relatively rapid and significant decline in advertising expenditures and that the recovery of advertising investments occurred in a short time. The annual growth of advertising expenditures rose to 4.9% in 2010 and an annual growth of 5.2% is predicted for 2012 (*ZenithOptimedia*, 2010b).

## DISCUSSION

### **Some important relations of advertising and market competition**

The authors of the early economical publications about advertising (*Kaldor*, 1950; 1951; *Bain*, 1965) *considered advertising and market competition inconsistent*. Those scholars who argued that advertising has anticompetitive effect stated that the main reason

for this is that consumers perceive the real or apparent differences among goods in consequence of advertising. In this way brand loyalty can begin and it can constitute barrier to entry, so it can deter potential entrants. Thus, the competition becomes less vigorous, those firms that could develop strong brand grow by the increase of sale and realize market power. In consequence of these a more concentrated market structure arises (Pearve *et al.*, 1971 cited in Lambin, 1976, Pepall *et al.*, 2008). However, the information content of advertisements connected to price, quality and place of shops makes the competition more vigorous (Pepall *et al.*, 2008). It is also confirmed by the results of empirical surveys (Benham, 1972). It can be explained by that in consequence of information provided by advertisements the consumers have more information about the goods and thus, the character of market structure approaches perfectly competitive market.

It has been argued that *advertising can be a barrier to entry*. Since those firms which have operated for a longer time in the market become widely known by the effect of advertising. Further they can achieve product differentiation and a certain degree of information and persuasion of the consumers. However, a potential entrant that appears as a new firm in the market needs time to realize these (Chiplin and Sturgess, 1981; Pepall *et al.*, 2008). According to Spence (1980) advertising can contribute to entry barrier by influencing the degree of economies of scale. However, Spence emphasizes that it is difficult to catch the economies of scale in case of advertising, in contrast with in the field of production. In this way firms that have operated in the market for a longer time have competitive advantage from a certain approach and to a certain degree contrary to a company enters into the market.

However, Schamlensee (1974) underlines that if a company operating in the market can not gain competitive advantage compared to a newly appeared firm then advertising can not mean entry barrier. Carlton and Perloff (2003) add to this that if the potential entrant thinks that its advertising would be at least so effective than those companies' advertising which have operated in the market for a longer time, the potential entrant will not reject entering in the market because of this form of the competition. Thus, advertising can not consider entry barrier in this case.

A company which introduces a new product or an innovation in the market often has higher advertising investments than those firms which enter later in the market. As the innovative company has to acquaint consumers with the new product and as it has to persuade them of the usefulness of the new good. Opinions vary about that potential entrants can be deterred from entering the market by intensive advertising and overadvertising (Dixit, 1980) or by slight advertising (Bagwell, 2001).

Sutton (1991) emphasizes some important relations. In those industries where advertising has an important role in product and brand differentiation, the value of advertising expenditures is significant and market concentration is high. According to Sutton the connection between intensive advertising and high market concentration is the strongest in that case when there is a vigorous price competition in the market. He explains it by that *high advertising expenditure can be regarded as sunk costs* and if price competition is vigorous at the same time, it will deter potential entrants even more. However, empirical surveys do not prove that advertising can take effect as an entry barrier (Greuner *et al.*, 2000).



In most of the publications that were published in 1950s and 1960s (*Kaldor, 1950/1951, Galbraith, 1958*) the conclusion was that *advertising has an unfavourable effect on consumers*. Professionals thought that the goal of advertising is to change consumers' taste and to make them aware of the uniqueness of the good and the brand so that consumers realize that the advertised product does not have close substitutes, or has only a few one in the market. If a certain proportion of potential consumers purchase by the effect of the company advertising, the market power of the company increases, the demand becomes more inelastic and its cross-price elasticity reduces. The representatives of this view underline that, however, advertising generates additional revenue for the company, it touches the consumers negatively. On the one hand as the monopoly power of the company rises, and in consequence of this deadweight-loss arises. On the other hand because it is argued that companies would like to achieve that consumers perceive differences among the goods. It means that they execute an artificial product differentiation. In this way there is a sort of wasting and advertising expenditures could be spent on the production of useful goods (*Comanor and Wilson, 1979; Pepall et al., 2008*).

*Telser (1964)* has an opposed view. He disputes in his path-breaker article that the monopoly power of a company increases by the effect of advertising. Based on his empirical survey of three industries *Telser* concludes that the more intensive the advertising in the industry, the more volatile the amount of the market share of the companies. This conclusion contrasts with that theory which states that by the influence of advertising the probability of consumers' brand switching is smaller or brand loyalty can develop and in this way the amount of the market share of the companies can stable in a long run. *Telser* emphasizes based on the results of his research that consumers are less attached to a product or a brand in consequence of the influencing effect of advertising. Therefore *advertising makes competition more vigorous*. It is confirmed also by empirical surveys (*Greuner et al., 2000; Nayaradou, 2006*).

According to *Reekie (1981)* the effect of advertising improves competition because by advertising consumers have more information about the products supplied in the market and the awareness of their purchasing decision making increases. If advertising becomes the determinant form of market competition, the advertising expenditures can reach a significant value and a sort of wasting competition can occur as a result of which the profit of the companies do not rise (*Pepall et al., 2008*). According to results of *Coyte and Landon's (1989)* empirical survey *the more intensive the market competition, the more the firm spends on advertising*. The relative volume of advertising expenditures has been comparatively stable in the various sectors in the last sixty years (*Pepall et al., 2008*). For a profit-maximizing company the optimal volume of advertising is where marginal cost of advertising and marginal revenue of advertising equal.

According to the modern approach of industrial organization advertising is a significant asset of competition among companies supplying different brands. In a sector the intensive advertising refers to vigorous market activity. Thus modern approach states that *it is not the effect of advertising in consequence of which the market power of a company gets stronger but it is actually the market power that encourages advertising* (*Pepall et al., 2008*).

Many researches were done on the relationship between advertising intensity and market concentration, however, the results vary. According to *Mann et al.* (1967), *Orstein et al.* (1973) and *Strickland and Weiss* (1976) advertising makes market more concentrated but *Telser* (1964; 1969) and *Ekelund and Maurice* (1969) conclude that advertising does not influence or reduces market concentration. Summarizing the papers that study this relation it can be stated that *it can not be determined certainly what relationship between advertising and market concentration exist*. It is also important to highlight that *cause and effect relationship between advertising and market concentration is not clarified*. According to certain opinions (*Reekie*, 1981) the relationship between advertising and competition is not a one-way one.

It is very important to realize that in majority of economical publications about the role and effect of advertising *it is assumed implicitly that advertising generates demand certainly and effectively*. It means that researchers do not take into consideration that potential consumers do not perceive all advertisements and that not each caught advertisement results desire for a brand or a product or generates real purchase. The reason for these could be that earlier there were much smaller amount of products in the market, in this way there were fewer amount of advertisements and consequently consumers paid more attention to the advertisements. However, by the evolvement of developed markets, mass production, expansion of product range and more vigorous competition among companies the role of advertising has become more important and its amount has increased significantly. In consequence of the dynamical rising of the quantity of advertisements the demand generating effect of advertising has began to decrease. According to this *it would be essential to integrate the declining efficiency of advertising into the relations and models of industrial organization and considering this to study the connections between advertising and market structure and advertising and competition*.

### **Relationship between advertising and market structure**

#### *Advertising and perfectly competitive market*

In consequence of the core characteristics of perfectly competitive market *advertising is an unnecessary asset* in case of this market structure. According to this the company which invests in advertising can not realize higher profits than its competitors (*Braithwaite*, 1928; *Harvey and Jowsey*, 2007). Thus, market competition is limited to price competition (*Lambin*, 1976).

However, there are some views which contrast with the basic, above-mentioned advertising theory in perfectly competitive markets. One part of them argues that also price-taker companies can require advertising so that they can inform (potential) consumers about the place of its shops. Based on this approach advertising is not inconsistent with this market structure (*Carlton and Perloff*, 2003).

*Telser* (1964) emphasizes that advertisements which provide information about product and seller have role and importance in a perfectly competitive market. As consumers would not know about the products and brands without the advertising of firms. In case of this market structure companies can not influence the price, however, it should be so high so that it can cover the costs of advertising. Furthermore, *Telser* points out that as companies provide the same information by

their advertisements, in consequence of homogeneous goods and price taking, neither of them can realize competitive advantage by communication to consumers. In this way advertising does not diminish competition.

In a perfectly competitive market if a company advertises, the whole market demand will increase as firms supply homogeneous goods, and in consequence of this all the companies operating in the market will realize additional revenue. The company which advertises, however, comes to a less beneficial financial situation than its competitors. Since it bears the costs of advertising and in this way it can realize only lower amount of profits than its competitors and as if it had not advertised but another company would have. In consequence of this firms are not motivated for advertising by themselves, because it would put them at a disadvantage. The larger the number of the companies operates in the market, the less the firms are interested in advertising. So there is probable a low degree advertising in perfectly competitive market (*Pepall et al., 2008*).

As it can be assumed that the companies which operate in a perfectly competitive market aim at profit-maximizing, the optimal level of advertising will be by that level where marginal cost of advertising equals marginal revenue of advertising. However, *Saleh and Mualla (2001)* point out by the economical demonstration related to the optimization of advertising expenditures that the optimal advertising investment of a company is zero in a perfectly competitive market. This can be explained basically by the perfectly elastic demand curve and the market actors' perfect information. In this way we get back to the initial view that in perfectly competitive market advertising is an unnecessary asset of competition.

#### *Advertising and monopoly*

As in case of monopoly only one company operates in the market and in this way there is no competition, advertising can not be considered an asset of competition, if only not in an implicit way so that it deters potential entrants from entering the market. Persuasive advertising has a little different role in this market structure than in a competitive environment. The monopoly firm has to highlight not the uniqueness of the good by the advertising but its objective should be to generate consumer need for the good.

In a monopoly market the quantity demanded of a good depends not only on its price level but also on the advertising of the company. The monopoly firm advertises with the purpose of increasing demand. However, it can be also possible that in consequence of advertising the new demand curve will be so inelastic that the optimal output level of the monopoly firm will be smaller than before advertising (*Dixit and Norman, 1978*).

According to *Dorfman–Steiner (1954)* condition the optimal advertising level of the monopoly firm is that where the ratio of advertising expenditures and turnover equals the ratio of advertising elasticity of demand and price elasticity of demand. It can be expressed as

$$\frac{a \times c_a}{P \times Q} = \frac{\varepsilon_a}{\varepsilon_p} \quad (1)$$

Where:

$a$  is amount of advertising messages which can be determined for example by seconds in case of radio and television advertisements,

$c_a$  is unit cost of advertisement for the company,

$P$  is the price of the good,

$Q$  the quantity demanded of the good,

$\varepsilon_a$  is advertising elasticity of demand,

$\varepsilon_p$  is price elasticity of demand.

Thus, it means that *it is optimal for the company to increase its advertising level until the ratio of advertising investments and turnover becomes equal with the ratio of advertising elasticity of demand and price elasticity of demand*. According to this relation the more price inelastic the demand is, that is the lower the value of  $\varepsilon_p$  is, the higher the advertising investment the firm needs. On the other hand the larger the advertising elasticity of demand, that is the higher the value of  $\varepsilon_a$  is, the higher the amount that the company has to spend on advertising.

It results from Dorfman–Steiner condition that if the price elasticity of demand is low, the company operates in the market will spend relatively much money on advertising. Furthermore, the larger the monopoly power a company has, the higher amount it spends on advertising. This connection expresses that it is not the effect of advertising in consequence of which the market power of a company rises but it is actually the market power because of which the advertising expenditure level of the company becomes significant (Pepall *et al.*, 2008).

It is important to emphasize the relationship between the degree of product differentiation and the level of advertising expenditures which also related to the above-mentioned connection. If homogeneous or very similar goods are supplied in the market, the price elasticity of demand will infinity or very high. However, the higher the degree of product differentiation is, the higher the slope of the demand curve becomes. As the monopoly firm supplies unique or highly differentiated good in the market, its demand curve is relatively steep. It means at the same time that the price elasticity of demand is low which related to that the supplied good does not have close substitutes. In this case it is easier to reach the consumers by advertising as there are not any similar products or competitors in the market. According to this by the effect of advertising the quantity demanded of goods rises significantly, so the advertising elasticity of demand is high and in consequence of this the advertising expenditures of the monopoly firm is relatively high. However, monopoly firm chooses the advertising investment level by which it can maximize its profit level.

#### *Advertising and oligopoly*

In an oligopoly market structure advertising has a significant role as an asset of competition, especially when companies supply differentiated products for the consumers. *If the products introduced by the companies are not homogeneous but they have unique characters, the information content of advertisements can support significantly the differentiation of products from competitors*. Furthermore, if a company applies persuasive

advertising, it will have even larger effect on brand choice and the development of brand loyalty. Thus, companies operating in oligopoly market inclined to spend relatively much money on advertising investment. In consequence of this oligopoly is primarily that market structure in case of which the level of advertising expenditures is exceptionally high and its growth rate is considerable. Since if a company extends its advertising and its competitor does not react to this with a more intensive advertising, it can lose in competition.

*Chen et al.* (1993) emphasize that *in an oligopoly market the advertising of the companies generate externalities*. Negative externality arises when the advertising company realizes additional turnover to the disadvantage of the other companies operating in the sector. Positive externality occurs if the advertising of a company increases not only its turnover but also the other companies' sale of goods. Furthermore, they underline that according some researchers in oligopoly market the advertising of the companies does not raise the aggregate consumption but it only contributes to the redistribution of market share. However, others' opinion is that also the aggregate advertising increases by the rise of aggregate advertising level.

*Chiplin and Sturgess* (1981) base their view on Dorfman-Steiner condition and they expand it with that in oligopoly market the company also has to take its competitors' reaction for its advertising into consideration. According to their model they come to the following conclusion.

- If the competitors do not change their advertising expenditure level in consequence of the change of the advertising expenditure of a company, the original Dorfman-Steiner condition occurs and companies make decision as in Cournot model.
- However, if competitors increase the level of their advertising expenditures in consequence of the increase of advertising investment of the company, then due to this the quantity demanded of the good supplied by the company will decrease on current price level *ceteris paribus*. In this way the lower the expected growth of the advertising expenditure of the competitors, the higher the optimal advertising expenditure-sale ratio of the company.

*Simon* (1970) argues that in a duopoly market if one of the companies overadvertises, it will decrease the efficiency of advertising of the other company. Since there will be more communication about products and brands aims consumers. Furthermore, the larger the difference between the amounts of the advertising expenditures of the two companies, the less effective relatively the advertising of that company which spends more money on advertising in consequence of principle of diminishing returns. According to my assumption the effects arising from these connections are valid at a certain degree also in an oligopoly market where more than two firms operate. Consequently they can be considered an important reason of decreasing advertising efficiency nowadays.

#### *Advertising and monopolistic competition*

As in monopolistic competition the goods of the firms are close substitutes, however not homogeneous, advertising has a very important role in product differentiation, so that the consumers can perceive what unique characteristics the

product has and what those features are that distinguish the product from its competitors. Thus, advertising is a considerable asset of competition also in case of this market structure, however, the amount of advertising expenditures of the companies is much lower than in an oligopoly market. As many companies with small market power operate in the market the advertising elasticity of demand is low. It is important to mention that in economic literature the role and effect of advertising are studied and analyzed the least in relation to monopolistic competition.

*Chamberlin* (1933), cited in *Bagwell* (2001, 2. p.), was the first researcher who analyzed profoundly the role and effect of advertising in monopolistic competition. His theory is determinant also nowadays. He considered the advertising expenditures of the companies operating in this market structure 'costs of sale'. He emphasized that the net effect of advertising on prices can not be determined in a theoretical way, because the whole effect is influenced by the informative character or the persuasive power of advertising and the degree of economies of scale arising in the field of production and advertising.

## CONCLUSION

In this paper I studied and analyzed the industrial organizational aspects of advertising as an asset of competition, providing a literature review. According to my research I concluded that researchers' opinion vary considerably about how advertising and market competition affect each other. Especially, the early researchers of this field argued that advertising of the companies can be a barrier to entry, makes the competition less vigorous and in consequence of these a more concentrated market structure begins. Those scholars who have an opposite view state that advertising makes competition among companies more vigorous, furthermore if advertising is intensive in a sector, the ratio of the market shares of the companies will be unstable. According to a modern approach it is not the advertising, in consequence of which market power develops, but firms advertise so that they can inform and persuade consumers. In this way, the cause and effect relation between advertising and market concentration is not solved. I also emphasized that it would be important to integrate the fact of decreasing advertising efficiency into the industrial organizational analysis of advertising.

I studied the role, features, financial value and effect of advertising in case of the main types of market structure. In a perfectly competitive market advertising is not relevant. However, the advertising expenditure of a monopoly firm is high. This is essentially because of the inelastic demand of its unique product and the high advertising elasticity of demand. In monopolistic competition and oligopoly market advertising has significant role in competition since it assists distinction of the different products from competitors. Companies operating in oligopoly market spend more on advertising as in this case there are fewer firms and advertising elasticity of demand is higher. It might be that market structure which primarily contributes to the worldwide growth of advertising expenditures.

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## THE PENETRATION OF LOCAL CURRENCIES, A POSSIBLE SOLUTION TO THE FINANCIAL CHALLENGES OF GLOBALIZATION

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### ABSTRACT

*While the role of the once dominant national currencies is decreasing, supranational currencies like the euro and local currencies used in smaller communities are widely used. The financial crisis has weakened the monopolistic grip of economies' national currencies. As has often been the case throughout history, local communities are trying to protect themselves and their economies with their own currencies, surrogates, and special accounting systems. Following the development of economic systems, community-based currencies are changing themselves. During their creation the primary concern is not only economic interests, but also local social, cultural, and moral standards. Using these they try to connect the untapped opportunities and unmet needs, and generally improve allocation of resources. Community currencies mostly have the same value as the national currency; this why they are called parallel or complementary currency, or social money. This serves two purposes: to maintain price stability and to facilitate the use of the parallel currency. If local money is used only for local purchases, and the national currency is used for all non-local purchases, there is no direct competition between them. Of course, people are generally more confident in the national currency, but they are also very sensitive to price. If some better form of payment, payment conditions, or even form of debt is provided them, they are likely to accept and join in the use of local currency and the community accounting system.*

Keywords: allocation, local currency, conditions, community accounting system

### INTRODUCTION

The continued economic development and globalization are examples of the number of challenges for our societies. From these the most important challenges are the regional and moral crisis of the nations, the unemployment, the inflation and the alternation of the cycle of recession and growth. Every single culture, country, region and society seeks possible solutions to maintain and repair situation of the various economic actors, especially the private sector. In the past decades the role of national currencies decreased in several cases, while the currencies of nations uniting communities seems to “get stronger”, although with significant vacillation. Their international acceptance and their role on the international financial markets have become more stable. In addition to these and improving their negative consequences resulting from use, local currencies used in small, local communities are widely spread Like in several occasions in the past 6 000 years, the

local communities try to protect themselves and their economies with own currencies, monetary substitutes and with special accounting systems.

### **A little bit of history**

Local currencies and accounting tools have had two basic goals in the past few thousand years. On the one hand they should provide the satisfaction of people's demands, namely the flow of products and services, the harmonizing of supply and demand. On the other hand they should provide the preservation of economic stability for the local economic actors. Let see some known and less known examples!

The medieval is a significant era of German cities' development. The Archbishop of Magdeburg in 1452 printed small tin sheets, which was used exclusively in the conduct of local trade. The little "brakteats" sheets should be handed in twice a year, which were newly made and returned to owners in with the tax reduced amount. The merchants lived their golden ages. They didn't want to accumulate the medium of exchange for the operation of the economy. So that the resulting excess is usually spent on infrastructural development and for the church.

After the Napoleonic wars thanks to the British bankruptcy because of the lack of the British national currency the exchange of goods were also under threat. Therefore, in 1816 Jersey Island citizens have been created their own local currency for the operation of local trade. Thanks to its efficiency the accumulated debts in national currency were paid after 18 months and important infrastructural developments occurred. Today there is local currency equivalent of USD 36 million in this system with about 60 000 economic participators.

In 1920, after World War I, the German government tried to manage the high deficit and the huge debt with the rapid inflation of the Deutsche Mark. Thus, the German cities, among them for example Lübeck, created its own currency to protect the local community's interests.

After the monetary crisis in 1929 also some American and Canadian municipalities, following each other, tried to survive the recession with the help of local currencies, which was helped also by the economist Irving Fisher with theoretical and practical propaganda.

The growing trend spread to Europe, one of the other success stories followed each other. In 1930, in a small village in Bavaria in Schwanenkirchen the indebted coal mine owner's printed slips "wära" instead of mark. He paid the salaries of their employees in wära and the local merchants were forced to accept it. The cover of the wära was the coal, itself as a commodity. The slips had to be enforced with a stamp per month. This ensured its rapid rotation and made its accumulation impossible. 2.5 million people used the almost 20 000 t-wära.

The local currency system called only as "Wörgl miracle" was introduced in 1932 in the Austrian city to address the problem of unemployment. For job seekers were public works provided p, which greatly improved the infrastructure conditions, their wages have been received in local currency, which could be spent by the local traders, who could satisfy their tax liability in this. The result of Wörgl's community currency is very significant. The unemployment rate decreased on the natural level in a year, while rotation speed of the new currency was 14 times faster as the national currency's.

The presented local currencies, thanks to central banks both in America and Canada, and in Central Europe, were in many cases, ephemerous. After some years the central bank had banned them.

To sum it up (*Table 1*) we can state that each community currency system tried to solve a crisis, generally with considerable success. They favoured local interests, both in moral and in social, cultural and of course the most important, in economic aspect as well.

**Table 1**

**General results of the local currency systems**

<b>Reasons for introduction</b>	<b>Results</b>
economic crisis	increase economic activity
high level of unemployment	decrease unemployment
huge national debt	increase money's velocity of circulation
company bankruptcy	its wide use excites inflation
improving quality of life, moral goals	its function based on solidarity

**Recently international results and experiences**

*Gomez and Helmsing* (2008) examined local currency systems (LCSs) of Argentina. The first LCS was started in 1995 with 25 participants under the name Club de Trueque (CT). Transactions among participants were written in a common computer file and individual cards, and were denominated in „créditos” as unit of account equivalent to one peso. Rise of number of local CTs is partly thanks to the Mexican and Asian economic crisis of 1995 and 1998. Around 4700 CTs operated in 2002 and they had approximately 2 500 000 participants. CTs varied in scale, scope, resources, and political visions. Year 2002 was the top, after 2002 number of CTs and participants declined quickly through different causes.

LCSs were important eminently for poor people. The majority of participants were unemployed workers, followed as second largest group by unpaid home-workers.

*Gomez and Helmsing* (2008) analyzed two mechanisms: the diversification of income that LCS offers households and the creation of micro-enterprises in the protected space of the LCS.

According to their survey, LCSs helped the poor to maintain their lifestyle. 42.5% of 386 respondents said their households' situation had improved after entering the CT, 57% of the respondents answered their situation stayed the same and only 0.5% said their situation deteriorated.

The majority of the participants indicated that their households had one or two sources of income in pesos. Most of them had regular or temporary or irregular job, but the income in pesos is insufficient to cover the household's expenses. So the activities in the CT clearly held a position as secondary or complementary source of income.

*Gomez and Helmsing* (2008) draw conclusions according to their Argentine observations. Well functioning LCSs “seem to have achieved long-lasting effects in terms of women's empowerment, acquisition of skills, and micro-enterprise

creation. On this last point, the LCS acted as a “social incubator” enabling some households to set up microenterprises.”

*Krohn and Snyder* (2008) did not find large benefits of using local currency system in contrast with Gomez and Helmsing, but Krohn and Snyder examined these systems in a forcefull, stable economy. They analysed locally printed money of the 1990s in the United States. The United States economy was relatively stable by historical standards in that decade. According to their analysis local paper currencies do not offer large economic benefits during periods of economic and financial stability. Conclusions of their study are the next:

- seigniorage from local currencies is small,
- cities in the United States that attempted local currencies during the 1990s did not experience higher rates of growth in income than other cities,
- more than 85 percent of the local paper currency systems begun since 1991 in the United States have become inactive.

### Typical forms of local currency systems

*Table 2* summarizes the typical forms of local currency systems and introduces their most important features. In the following we introduce briefly the functions of these currency systems.

**Table 2**

#### Typical local currency systems

	<b>Ithaca Hours</b>	<b>Time Dollars</b>	<b>LETS</b>	<b>WIR</b>
Unit	1 hour = 10 US\$ (on account))	Time of service	Green \$ = \$	CHW
Who puts into circulation?	Center	Co-operative	Co-operative	Center + Co-operative
Details	full bodied money without intrinsic value, coverage handling is necessary	generally fixed exchange rate 1 hour of yours = 1 hour of mine	the most widespread local system	accounts in national currency (CHF), among themselves CHW

Source: Based on [www.transaction.net](http://www.transaction.net)

The “Ithaca Hour” is the largest and oldest local currency system in Ithaca (in the United States) used in Ithaca, New York. .One Ithaca Hour is valued at US\$ 10 but the direct conversion is impossible. The issuance of currency is controlled by the Circulation Committee. How do new Hours get into circulation?

- The local self-employed who accept these community currencies have to pay US\$ 20 for the membership of the Directory and get immediately 2 Hours. There are 900 entertainments (self-employed) in the system.

- the Circulation Committee gives interest-free loan or some donation for local institution (school, church, firm),
  - Basic system expenses are paid in local currency, such as printing new currency
- Employees of the sole traders who can accept this local currency are paid partially in Hours which is available in local shops, swimming pool or in some market.

The Time Dollar system differs from it because the value of time dollar is not expressed in national currency. The unit of currency is always valued at an hour's worth of any person's labor. (One person volunteers to work for an hour for another person, they are credited with one hour, which they can redeem for an hour of service from another volunteer.)

So there is no need any store of value.

A LETS (Local Exchange Trading System) spread very quickly in Anglo-Saxon countries due to the development of computer science.

These states, cities and village had high unemployment rate this time. 450 groups has been formed in the United Kingdom. The largest is in Australia, near Sidney which is still working with 1800 members who can change services with each other, e.g. babysitting, cleaning, tutoring, small home repairs.

In Minneapolis there are some shopping center who can accept these complementary currency in some percent. - That means it is a price-cutting, so that can increase the sale.

The „surrogate(s)(?)“ that has been created by Wirtschaftsring-Genossenschaft (WIR) in Zurich in 1934, is still in circulation. The organization has introduced a local currency called CHW it does exist just in the form “scriptural money”.

The cooperative issued local money in two forms:

- the members of the cooperative paid Swiss franc to bank account of WIR, and got 5% more in CHW.
- interest-free loan in CHW. This form of money issue still exists.

Nowadays the cooperative has 60 000 members and organizes regular training programs and meetings to encourage its member's business relationship. This activity has a positive influence on the circulation between the Swiss small- and middle-size companies.

### **Local currency systems and functions of money**

Under financial theory aspect, it can be interesting to examine the monetary function of these exchange trading systems (scheme nr. 2). The standard measure of value is available in every local monetary system but they are just exchangeable in a few places. The voluntary service as well has an important role because nobody can be obligated to accept or pay off the total amount of debt with this local currency. The most essential requirement of the system is this voluntary service. All systems can be fill standard of deferred payment function. The restriction of the “accumulation function” is the other essential requirement of the system because it's not to save money but to promote the local circulation. Although it is possible to lay by but it's really useless if we think about what we could do 10 000 Hours “time dollar” as a pension. Finally, we can say that these local currencies can act the part of monetary function with these restrictions but we cannot define them as “money” because they are not created by banks (*Table 3*).

**Table 3**

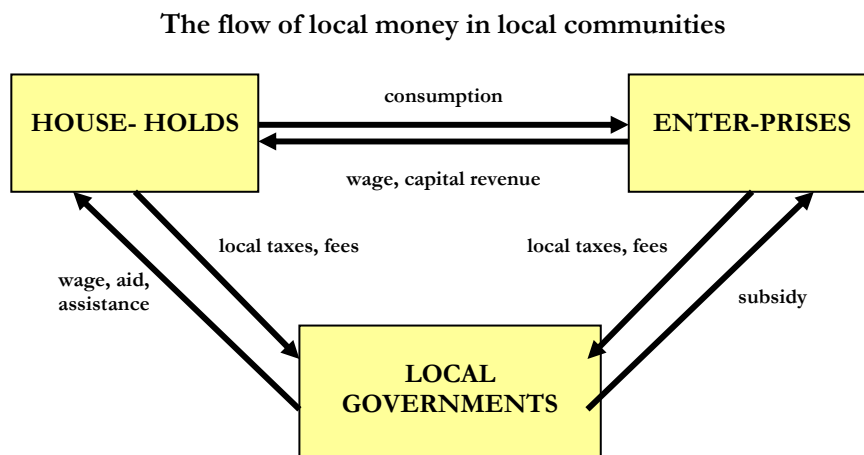
**Typical local currency systems and the functions of money**

	<b>Ithaca Hours</b>	<b>Time Dollars</b>	<b>LETS</b>	<b>WIR</b>
Standard of deferred payment	+ (hour) area limit	+ (hour) area limit	+ (green dollar) area limit	+ (CHF) area limit
Medium of exchange	+ volunteering limit	+ volunteering limit	+ volunteering limit	+ volunteering limit
Unit of account	+ Interest-free loan	+ mutual credit systems		+ loan
Store of value	- no conversion of national currency	- possible, but non sense	- exchange with 10% free	- no interest or conversion

**The most important points of introducing local currency systems**

It is very important for the local currency to circulate quickly and participants do not have to convert them in the national currency. It is therefore the households receive share of transfers and the wage only as much in local currency, which are disposable within one month. The case of enterprises will be the income in local currency not much than paid wages and local taxes. So the local government can cover wages, aid and subsidies from this local tax income. In our opinion the balance of expenditure and revenue of economic participants is necessary condition of successful local currency (*Figure 1*).

**Figure 1**



## **CONCLUSIONS**

To sum it up we can state that local currencies are able to fulfill all of the functions of money and people can call them money, although strictly speaking they are only monetary substitutes. What's more they are endowed with special functions next to the classical function of money, which strengthens the identity of the local currencies.

However the idea, that local currencies are able to replace national currencies, is highly dubious, because they have local and volunteer barriers.

For themselves their existence is legally questionable, because only the central bank has the right to put money into circulation. Until these are used in different forms of vouchers or monetary substitutes, they stay outside of the national bank's control.

Their indisputable result is that they can encourage local communities to create value by mobilizing extra resources in our highly globalized world. As the only domestic and international examples show local currencies played a great role in that local communities could address the negative effects of economic crisis, as well as living standards have risen. For this, however, social, cultural and moral unity is essential.

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## THE SOCIAL JUDGEMENT OF THE TAX AVOIDING BEHAVIOUR

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### **ABSTRACT**

*Social judgment of tax supervision examinations is twofold. Many citizens agree with the aim of the examinations and with the punishment of those intentionally finking out on the obligation of paying tax. Yet many also question the grounds of the arrangements because of the apparent superfluity of many processes and because of the intimidation practiced generally on taxpayers. My essay places the dilemmas of tax avoidance in a wider psychological-economic perspective from the taxpayers' point-of-view. By practicing tax evasion, some people involved in the economy acquire an unfair, undeserved competitive edge, resulting in a significant welfare deficit in the society their taxes should be supporting. The first step in eliminating tax evasion is identifying the methods of tax evasion. This should be followed by risk analysis and tax control and finally the application of appropriate punitive measures. In individual states, different law regulations are applied against tax evasion. Whatever methods are used, control of bill-distribution and registration are the primary tasks. In sum, I can say that the reform of the tax system will only be successful if it considers the expectations and demands of the people while taking account of their desire for a functional, just tax system and their desire for a simple, unintimidating one. A tax system will be really successful only if it increases economic efficiency by decreasing administrative loads, taxation, and tax evasion.*

Keywords: hidden economy, tax avoidance, tax evasion

### **INTRODUCTION**

The social judgement of the tax supervision examinations is dual. A part of the citizens agrees with the aim of the examinations, with the impeachment of the layer finking out of the obligation of paying tax intentionally, in terms of the social justice. Another layer queries the grounds of the arrangements because of the superflux of the processes and because of the intimidation of the whole range of the taxpayers.

The leading idea of my work is the next sentence: „Everyone, as much as possible, should contribute to the charges of the homeland, according to a right rate.” Széchenyi István's sentence wins a new meaning in the slump, because under such circumstances, there is a greater need than ever before for paying tax, collecting tax incomes. By the tax evasion, some people involved in the economy acquire an unfair, causeless competitive edge, resulting a significant welfare deficit in the society in the taxpayers' group.

### **MATERIALS AND METHODS**

During my sociologic survey, I charted the opinion of the active people of the economy about the effectiveness of the tax control and the judgement of the tax



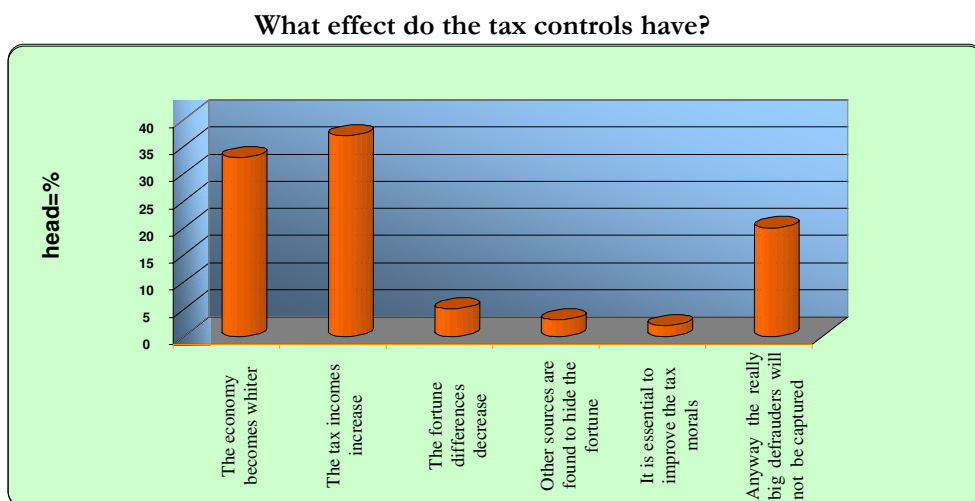
evasion. I performed the primary surveying in November and December 2010. I sent the questionnaire in an electronical way to my former schoolmates and to entrepreneurs working mainly in county Vas and in Szombathely. In early November, 100 questionnaires were sent. Until 22 November, the deadline of sending them back, 74 filled questionnaires were sent back. To increase the number of elements, I sent 40 further questionnaires to my acquaintances. From them, 22 questionnaires were sent back until the middle of December. I completed the number 100 with my colleagues too, so, the total number of the questionnaires to work out was 100. Everyone who filled in the questionnaire had at least a secondary school qualification, 64 people had a college or university degree, 20 people had a grammar school final exam certificate, 16 people had a secondary technical school or a vocational school final exam certificate. 54 percent of them were men, 46 percent were women. Considering the distribution according to age, 37 percent of them were between 20 and 30 years old, 43 percent of them were between 30 and 40 years old, 16 percent of them were between 40 and 50 years old and 4 percent were older than 60 years.

In the sample, the people with higher school qualification and the younger people were overrepresented. The sample was not random and of course it can not be regarded as representative, either.

## RESULTS AND DISCUSSION

According to the majority of the respondents, the tax control has a social usefulness (the economy becomes whiter, the tax incomes increase, the fortune differences decrease) (*Figure 1*).

Figure 1

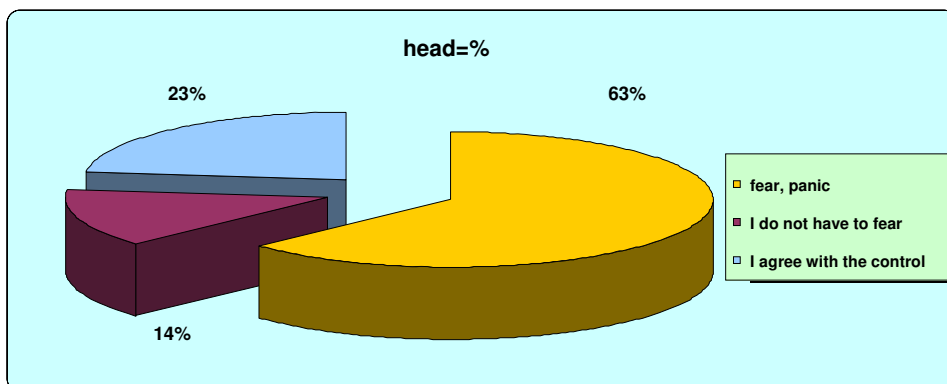


From the expected social effects, the increase of the tax incomes is expected by the most people (37%).

The evaluation of the questionnaire pointed out that the words „slump” and „tax control” arise negative emotional disorders in the majority of the people (Figure 2).

Figure 2

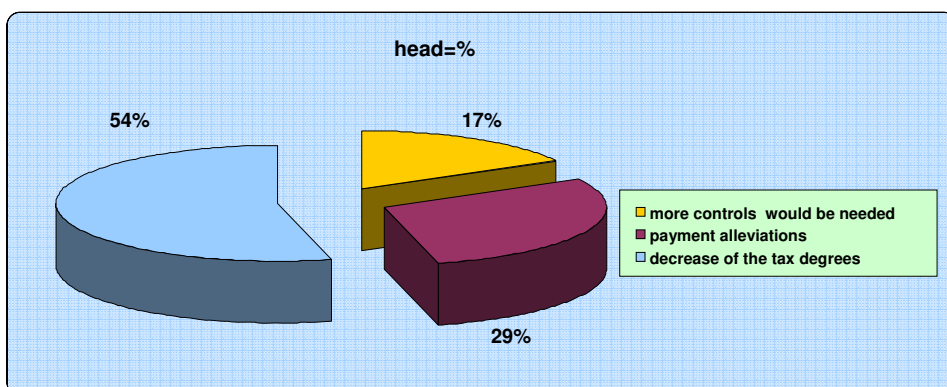
What feelings does it evoke in you if you listen to the word “tax control”?



It is perhaps not surprising that only 14% marked the category „I am slightly affected by the slump”, because the present recession affects nearly everyone. Even if it is hard, we have to accept the fact that we can not back ourselves out from the slump that concerns the whole world. Typical for a person being in a crisis situation is that his / her attention aims mainly at his / her problems, he / she suffers from distresses, fears.

Figure 3

What factors affect the repression of the tax evasion?



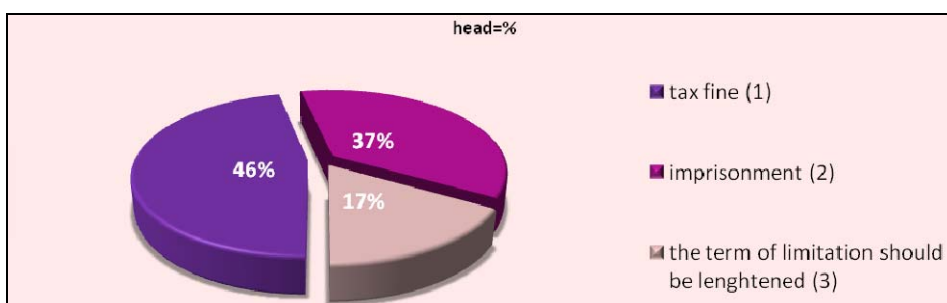
According to 54% of the respondents, the repression of the tax evasion can be correlated with the decrease of the tax degrees (Figure 3). Internationally, we can say

that in the slump the governments of the countries tend to improve the situation of the individuals and enterprises with the decrease of the tax degrees, with a faster tax rebate, with assuring payment alleviations (instalment, payment postponement, positive judgement of the petitions in chastisement), so to efface the tax evasion behaviour in the grey zone. The unambiguous cogency of the justification of the punishment and the proportion of the degree of the punishment with the seriousness of the action decrease the negative emotional disorders created in the taxpayer.

According to 46 percent of the people the tax avoiding behaviour should be punished stricter than the present punishments are (Figure 4).

Figure 4

#### How should we punish the tax avoiding behaviour?

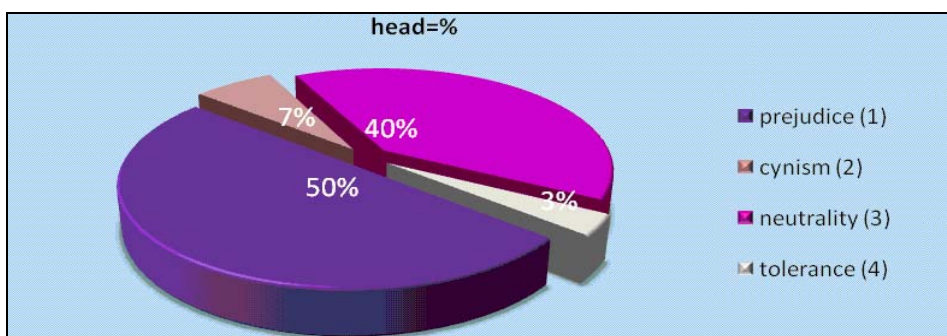


According to the act about the taxation the tax fine should be 50 percent of the tax deficit (in some special cases 75 percent). It is a special case if the deficit connects with the concealing of the income with the falsification of the warrants, journals, registers. Only 17 percent of the people think that the taxpayers should be controlled also after more than five years.

Half of the people are against the tax avoiding behaviour. 40 percent of the people are neutral and only 3 percent of the people are tolerant (Figure 5).

Figure 5

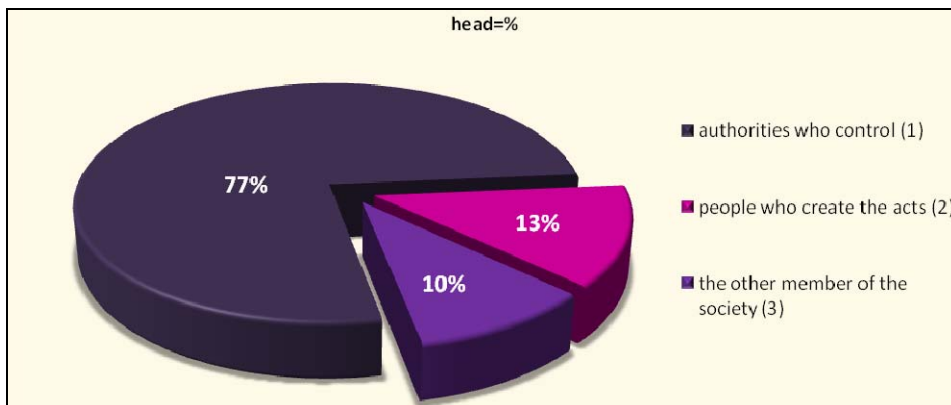
#### What do you think about people with a tax avoiding behaviour?



77 percent of the people think that the tax authority has the biggest role in the rolling back the tax evasion (Figure 6).

Figure 6

Who has bigger role in the rolling back the tax evasion?



Among the control tasks of the Hungarian National Tax and Duty Office in 2011 it is a primary tasks to perform successfully against tax evasion, so that the taxpayers who tend the think out of paying tax.

### CONCLUSION

The tax control, as I mentioned in the introduction, creates numerous debates in the society and it constantly keeps the activity of the tax office in the centre of interest. Despite this, I chose this topic because the present constant interest around it, with its indirect psychological influences, has a positive effect for the inclination of paying tax. With my survey by questionnaires, I tended to point out what emotional-psychological effects the controls have for the thinking of the taxpayers. The first step of the front against the tax evasion is the identification of the method of the tax evasion during the risk analysis and the tax control, then the application of the appropriate authority measure. In the individual member states, different law regulations are applied in the front against the tax evasion. In the past years, the constantly modernized law environment has already assured numerous means for the tax authority to the more effective exploration of the illegal activities, the tax evasions. In Hungary, the front against the black economy takes place in line with several aligned scopes, because beside the traditional tax controls, the so-called operative controls, that mean mainly the controls in markets and in public places, are regarded as effective means in this respect. Within this, the control of the giving of bills and the registrations is the primary task. In sum, I can say that the reform of the tax system will only be successful if it considers the expectations, demands of the people of the economy staying in both sides. A tax system will

become really successful, if it increases the economic efficiency, if it decreases the administrative loads accompanied with the taxation and the tax evasion. At the same time, it fits to the social justice criteria defined by the government, too.

## THE DYSFUNCTIONAL OPERATION OF MONEY

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### **ABSTRACT**

*A stable society requires a stable economy, and that requires the foundation of a stable money and currency system. In order to understand many of the typical problems facing a society it is important to go beyond social, political and general economic issues to investigate the essence of the whole system, the stock it is based on: the money. The aim of this study is to trace the basic dysfunctional structures ingrained in the current global financial and monetary system and to present the consequences of those structures' existence. The conclusion of the research suggests that there is a considerable correlation between the actual operation of money and most of the serious threats societies and humanity as a whole face nowadays: The regularly occurring economic crisis, the record levels of debt, the increasing level of unemployment, inflation, the growing gap between rich and poor, and the environmental degradation are all examples of the negative effects the study highlights as inevitable consequences of our monetary system. In its conclusion, this report introduces an alternative money system that could help solve economic problems for the communities faced with such problems.*

Keywords: debt, interest, inflation, unemployment, community currency

### **INTRODUCTION**

Money, in general, is a medium of exchange. The irony of this statement, however, is that money can also hinder the potential economic transactions and trade – especially as it is used and operated nowadays.

Despite the incredible productivity and technology of modern economies, nations and workforce are required to work ever harder to increase their economic performance each year. Although we are living in a world of plenty we are experiencing rising level of debt, poverty and stress, and the gap between rich and poor is also increasing.

*Greenspan* (2000) once said in relation to the concept of money: “It is not possible to manage something you can’t define.”

Money is still blurred with mystery and mystification although many of the challenges we face can be traced back to the concept of money and the way it is governed.

The purpose of the report is to outline the reasons why the idea of monetary reform is one of the most fundamental matters for a sustainable future and to open up a choice we have to create a balanced economy for regions.

## CONTRADICTIONS IN THE CONCEPT OF MONEY

It is not an easy job to analyze money, the system of money and its nature, because as soon as we start dealing with the topic we face many contradictions.

Before examining the main deficiencies of money, however, first let us clarify why money is considered to be a great invention. As a wheel which made transit easier, money made the exchange more convenient and effortless. Without money, service had to be paid by service. If the basket weaver, for instance, needed a pair of shoes, he had to find a shoemaker that wanted to get a basket. The example shows how limited the trade was without money and there were no real option for specialization and for the division of labor. Looking at the exchange of services – which made civilization and cultural development workable – money is acting as an intermediary that saves the supplier of a service from depending on an exchange partner. Money makes service attainable to everyone who is interested in it and provides freedom for the supplier to use the received signal for any other product or service he wants. Prior to the modern money system, other products played the role of mediation; products, which could be used by almost everyone, such as salt, grain and cacao bean. Although these goods were eligible for exchange as they had high life-span, their handling was not practical and they lost their worth in the course of time.

Contrarily, the countable and durable money that was easy to keep and carry, and which made prices easily comparable, generated breakthrough towards economic development, which was a must for civilization (*Creutz, 1995*).

Development of money, however, brought new and significant challenges as well. The root of these challenges can be captured in the contradictions money incorporates (*Creutz, 1995*):

- Money works as a medium of exchange and as a store of value at the same time, although one function invalidates the other.
- The compulsion to accept money is not balanced by the compulsion to pass it on.
- The only public service which anyone can legally withhold and abuse it for private benefit.

These contradictions would already be enough to understand the problematic nature of money and why it generates troubles within an economy. To see what it means in practice, however, we need to summarize what purpose money can serve and why circulation is the most essential concept regarding the role of money in an economy.

## MONEY CIRCULATION

Prime Minister of France, Eduard Daladier, said the following during the London Conference in 1934:

“In our economic system money has the same function as blood for the body of human beings. In order to fulfil all the different functions of life, circulation of the

blood must be ensured without interruption. With money it is the same - it necessarily needs to circulate in order to realize full employment" (*Glötzl*, 1995).

We usually receive money for providing a product or service, and the same way we usually give it away in exchange for a product or service. However, we can use it to other purposes as well, such as donation or lending, or we can just simply let it sit.

If we donate the money, it moves from one person to another and the new owner can use it for any good or service she requires. If we lend it, we temporarily give up our right for that money. If we let it sit, then we hold the satisfaction of our needs and wants to a later date. This way, however, the circulation of money stops, and this contraction is not a single event, rather a chain-reaction.

If, for example, money changes hands two times a month then a deposited 100 Euro will cause a 2 400 Euro shortfall in demand a year. In case of donation and lending circulation remains closed. Holding back money, however, cause disturbance which in the course of time will accumulate.

Therefore one of the basic defects of the structure of money lies within its function of storing value.

So summarizing the functions of money we end up with the followings: medium of exchange, store-of-value and a price-comparing instrument. Besides that we can gain capital by lending it in exchange for interest payment(s) (*Creutz*, 1995).

### **What are the consequences of savings?**

To consider the consequences of savings we need an example that is narrow enough to be able to track its steps. Still pursuing the illustrations of Helmut *Creutz's* book (1995), let us imagine an island with 10 residents, who all provide service for 200 Euro and require service worth the same. Furthermore, let us assume that money go around two times per month. In this case 1 000 Euro is needed for the transaction of trade. If they continuously spend this money in the island, the circulation of money and conjuncture will be stable. Everybody provides the same degree of service as they require. In case of satisfied needs and wants economic growth is not necessary.

Take the following situation into consideration:

One of the residents – who has the same 200 Euro-income as everyone else – need only 180 for himself, therefore he saves 20 Euro each month.

1. The saver donates regularly the saved 20 Euro: if the beneficiary spends this 20 Euro with equal regularity, then the market of the island will sustain invariably. Actually the beneficiary has resort to the services the saver (donator) gave up. In the long run, however, the beneficiary will get richer compared to the rest while the wealth of the donator will drop.
2. The saver regularly lends the 20 Euro: in regard to the market of the island and to the distribution of wealth the situation is the same as in the first case. The unsettled compulsory redemption, however, raises the assets of the lender and the debt of the borrower. A year later, the sum will be 240 Euro, and 10-year later it will grow to 2400 Euro. Hence, ten years later the assets as well as the debt will be 2.4 times greater than the amount of money circulating on the island.



3. The saver lends the money in exchange for interest: The market of the island – concerning the circulation and the conjuncture – does not change at first. The person who receives the loan, however, now has to pay “lending fee” every month besides his promise for paying the principal. This can be paid only from his income. In case of a 10 percent interest the fee will reach 2 Euros in a year and 20 Euros in 10 years. There is a steadily growing interest expense on the one hand, and a steadily growing income on the other. If the saver is keep saving the same way as before then – thanks to the interest incomes – he will be able to lend a greater and greater amount – besides the 20 Euros saved monthly.
4. The saving person accumulates the money at home: this way 20 Euros is taken out from circulation each month. 10 month later, 200 Euros will be collected – the one-fifth of the total money supply circulating. 50 months later, mathematically, all the money at the island will be in the hand of the saving person.

This case, of course, cannot occur since the monthly growing scarcity of money stops the island’s economy much earlier (*Creutz, 1995*).

#### **What can we learn from the example?**

As the first three cases indicate, the saved money not only can be donated or lent, but it actually *must* be put back into circulation if we do not want the economy to collapse – as it was presented in case 4.

Taking the second and third case into consideration we can see that by lending money, only debt grows and not the collective sum of money. This, in theory, can grow to infinity without influencing the money stock. In regard to both cases, the debtor is less and less able to pay the growing debt and it becomes more and more dependent on the lender. More and more of his assets need to be put in pawn and finally, all he owned once – house, garden – get into the lender’s property (*Creutz, 1995*).

In former times, at the end of the treatment the debtor became serf or closed into prison. Nowadays, threat means “only” insolvency and the pawning of the debtor’s property or regular income.

In regard to the second case, however, in my opinion debt can be paid back easier. The point is that it has to be paid back in the same proportion and in the same pace as it was lent, and has to be spent as well. The one who is paying the debt has to save 20 Euros each month and give it to the lender, who in turn, spends this amount in the economy.

Lending money without interest does not cause such problematic situations as mentioned above – only in very few, rare cases. So, it is not usual that someone collects money all the time while someone always borrows some. These procedures rather break and turn around. In addition, they progress only “linearly”. In case of the third case, however, debt – as a result of the effects of interest – increases in a greater and greater degree.

If the borrower paying the interest is not able to restrict his standard of living continuously, he *has to improve its performance constantly, and sell the excess production or service to others*. If a third, however, does not want to have his product or service unsold, a general increase in demand and consumption becomes necessary, and – if

they want to keep prices stable – the bank of the island needs to pump more money into the economy.

*Lending money in the form of debt* involves an acceleration effect, which *leads to a growing inequality between the creditor and debtor*.

Additionally, if the debtor needs to pay his debt from new debt, the redistributing process becomes irrevocable. Nowadays, this course can be followed in case of many factories, households, countries, and especially in case of national debts. (From an individual perspective, borrowing money at interest rate is profitable only if, the debtor can develop such productive investments that have returns over interest obligations).

Interest based lending is trouble free only if the saver and debtor – even at differing time horizons – is the same person, meaning that he has the same amount of periodical interest income as his current or past interest payments were (*Creutz, 1995*).

### **THE CURRENT MONEY MECHANISM**

Currently, the financial system of most of the countries is based on the central and commercial banks. Central bank creates money – out of thin air – and commercial banks lend it further in the form of credit. So “when a deposit of central bank money is made at a commercial bank, the central bank money is removed for circulation, and an equal amount of new commercial bank money is created. When a loan is made using the central bank money from the commercial bank (which keeps only a fraction of the central bank money as reserves), the money supply expands by the size of the loan” (*Gregory, 2002*). Now that is the traditional explanation of the so-called fractional-reserve banking system and it may be the case in some countries, but certainly there are countries and states where fractional-reserve banking means something else.

The Federal Reserve Bank of Chicago used to publish a booklet entitled as “Modern Money Mechanics” in a purpose to describe the basic process of money creation in a fractional-reserve banking system. Within the last paragraph of the sixth page, the following statements can be read:

“Of course, they (banks) do not really pay out loans from the money they receive as deposits. If they do this, no additional money would be created. What they do when they make loans is to accept promissory notes in exchange for credits to the borrowers’ transaction accounts” (*Federal Reserve of Chicago, 1996*).

The document declares that for a \$10,000 deposit, \$1000 is kept – at a 10 percent reserve requirement – as reserve and new loan can be created in the amount of the remaining \$9000 (excess reserves). So the \$10,000 remains in the bank, but a newly created \$9000 can be lent out (*Federal Reserve of Chicago, 1996*).

In addition “the *interest received* by the banks *is partly* paid out again, as its operating expense and dividends to shareholders, but some is *retained as “reserves”*, which have to grow in proportion to the growth of the money stock, *and are not then available to perform as part of the money supply*” (*Leslie, 2008*).

We have seen already what disturbances money taken out from circulation can create. The prior example mentioned interest charges on existing money and still it was

problematic. Now, even money newly created is charged with certain rate of “fee” and the problem is that the interest which needs to be paid is not. Whether money is created solely by central banks – and passed on in the form of credit by commercial banks – or it is created by commercial banks as well, *the only way interests can be paid is by lending more money into the economy. This means that new loans need to be taken out faster than old ones are paid off otherwise the whole economy experience recession or depression.* We face the same problem today globally. There are other factors as well, of course, but the essence of the current crisis lies within this process. The rate of debt all over the world is increasing fast reaching record levels along with record levels of wealth of the elite few.

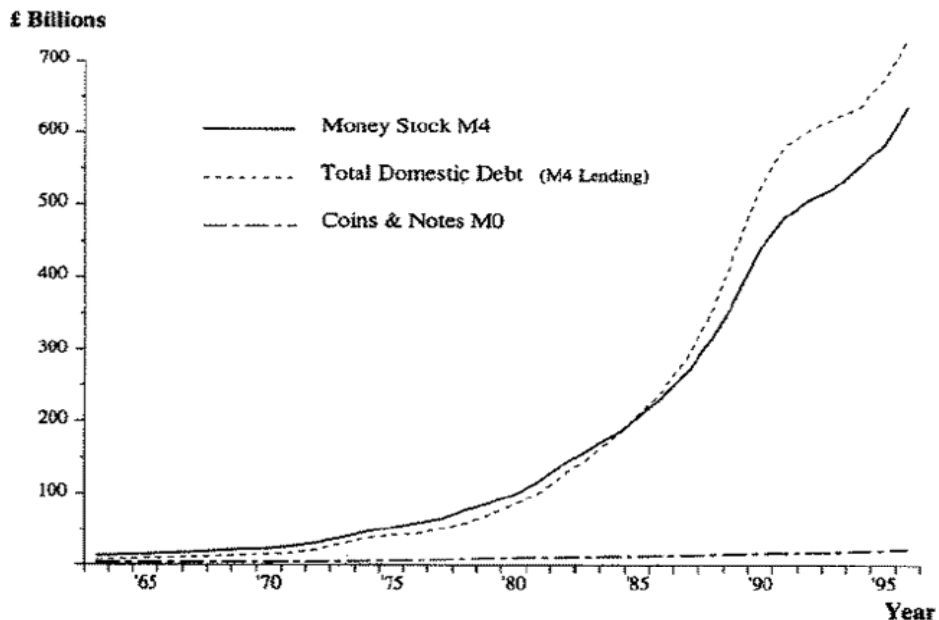
Even if those huge profits are spent into the economy, it would likely boost the luxury market alone and would not serve the society as a whole – as the profit is in private hands, the tendency of the economy and market mechanism would depend on their own taste and not on ideas designed to serve the community. But since received interest can serve as a reserve, even the noble-minded beneficiary will not spend the whole profit in the sake of the society. (They may get out of business or competition if they do so).

Taking this mechanism into consideration, we should assume that debt is growing faster than money stock, and once it should collapse.

In the UK, for instance, as *Figure1* represents, domestic debt became greater than the money stock in 1984 and it is growing at a faster pace since then. It means that the sum of notes, coins and money on current accounts is not enough to pay the debt.

Figure 1

Graph of “Money Stock” (M4) and Domestic Debt 1963-1996



Source: *Leslie, 2008*

Why does it matter?

1. *Cycle of booms and slumps are inevitable.* Money supply charged with interest results in economic booms and slumps. In a growing economy banks confidently give out loans, but when they become worried about the security of their loans – which is imperative as there are not enough money to pay the debts – they start calling them in without lending more. This contraction of the money supply creates a vicious circle: firms – in order to stay in business – pay lower wages to employees; lower amount is available for purchases; hence the lower sales figures make companies run out of business; unemployment increases...etc. Eventually something will reverse the process. Usually this means injecting money into the economy by borrowing (again) certain sum from central banks or from international institutions, funds (Leslie, 2008).
2. *“It gives the banks power to decide who can get loans, on what terms, for what purpose”* (Leslie, 2008). The decision is based on their own needs, of course. Banks search for clients with reliable ability for repayment and with collateral which they can claim in case of default. This means wealthier – in contrast to poor people – can apply for loans easier and thus, has the opportunity to become even richer. (Advantages of the larger firms over small ones could also be mentioned). Moreover, it makes every debtor – and not debtor as well – think in terms of money and profit, otherwise they will not be able to pay their debt, and unfortunately the socially and environmentally damaging projects seem to be more profitable than the renewable energy projects. Basically, money supply is not – it cannot be – matched to society’s needs, only to “profit”.
3. *“It results in growing indebtedness and growing competition* for funds and profits to discharge debts; it causes the crazy, desperate struggle between nations to export their internally-unsalable goods, in exchange for foreign debt. ... Banks also impose high levels of interest on this debt, causing the growing divide of extreme wealth and poverty – and giving the banks huge profits, out of proportion to the service they perform. Practically every country has a fast-growing national debt – and the country with by far the biggest national debt is the richest: the USA” (Leslie, 2008).
4. *It requires a growing money stock* in order to pay the interest on the ever growing debt. When money stock increases we talk about ‘economic growth’ – usually along with price inflation. However, since money stock comes into existence in the form of debt, we need to mention ‘debt growth’ as well. Growth of an economy – based on the mechanism being considered – goes hand in hand with the growth of its debt.

Table 1 represents the results of a regression analysis between the total debt of a country and its national income, taking 132 countries into account for the year 2004 and 2005.

According to the results, *the correlation is perfect.*

Moreover, due to interest, debt grows at an exponential rate so it will always increase at a greater pace than GNP.

Figure 2 indicates the change of the total credit market debt and GNP in the US between 1971 and 2008.

Table 1

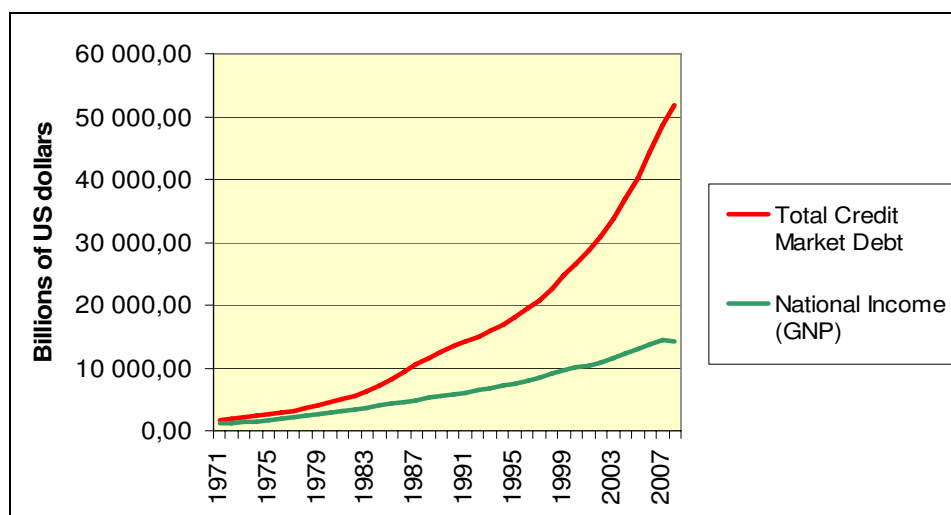
Modelling money as debt

Calculations:	
Corr. GNP vs. All debt 2004:	0.981
Corr. GNP vs. All debt 2005:	0.984
Corr. GDP vs. All debt 2004:	0.957
Corr. GDP vs. All debt 2005:	0.953

Source: *Kézis*, 2009

Figure 2

Total Debt vs GNP



Source: *National Security Agency and the Federal Reserve Bank of St. Louis*, 2011

“To attempt to repay these debts we cut expenditure and try to improve “productivity” (per person as well)...Yet, or because of this, we cannot ‘afford’ to employ all those seeking work... Despite the incredible productive capacity of the modern economy the workforce is required to work ever harder, with increasing stress and poor pay – *we are always chasing insufficient money*” (*Leslie*, 2008).

1. *It raises costs and prices.* Interests charged on loans have to be built into prices to cover costs (and still make profit). On average, about 30 to 50 percent of all prices can be traced back to interest charges. Additionally, tax-cuts are more and more difficult to accomplish – although it would be favorable to the public and likely to the economy – since this is the main source of the government by which its debt, more precisely, the interests of its debt can be repaid (*Brown*, 2008).

2. *Bank created credit can be used for financial speculation* which gambles world's currencies against each other which, in turn, likely to disrupt the operations of many economies. "Over 95 times the money needed for international trade in goods and services changes hands in this gambling" (*Leslie*, 2008). In addition, giant international banks are not only acts as lenders in the global markets but as investors as well. "Banks have a grossly unfair advantage in this game because they have access to so much money that they can influence the outcome of their bets" (*Brown*, 2008). Furthermore, if the bank – especially in case of the US – is one which is titled as "too big too fail" institution, it can be confident that even if its bet goes wrong, the taxpayers directly and indirectly through the FDIC will bail it out from its mistake (*Brown*, 2008).

### **Question of inflation**

The second *myth* is *about government printed money*. The idea that government could simply issue the money it needs is regarded inflationary, yet *banks create money all the time*. Moreover, they must do in order to keep the "system" or the economy running. In addition, interests charged on loans are added into the prices charged to cover costs.

"A dollar accruing interest at 5%, compounded annually, becomes two dollars in about 14 years. At that rate, banks siphon off as much money in interest every 14 years as there was in the entire world 14 years earlier" (*Brown*, 2008). (This assumes that the debt is not paid but just keeps compounding, but in the system as a whole, that would be true. When old loans get paid off, debt-money are extinguished, so new loans must continually be taken out just to keep the money supply at its current level). The Federal Reserve started tracking M3 in 1959, and according to its chart, M3 was about \$300 billion in that year. 14 years later (1973) it was \$900 billion. 14 years after that (1987), it had grown to \$3,500 billion; and in 2001 it was \$7,200 billion (*Board of Governors of the Federal Reserve*, 2002).

#### *What causes and directs inflation?*

The main cause of the constantly increasing prices is the exponentially growing debt. It would be more logical if the product or service representing or rather involving accomplishment come into existence first and only after that could money be created – which symbolically represents these accomplishments, and which has no value in itself. In the current – mostly privately owned – financial system, however, first the symbol is created and then the participants of the economic life have to develop the content – so the product or service – for this "empty signal". Society needs to pay for this signal created at a very low cost by real outputs, real work. This way the output of the (value-creating) workers flows to a small group that has the power to create money and control the degree of interest. The official reason of inflation – rise in the general level of prices of goods and services – is the excess growth of money supply for a given amount of products. We have already seen that more and more money needs to be created for the interests of debts, and if this increase in money supply is greater than the growth in the volume of products, inflation will arise. (Certainly, there could be other factors

for the general price increase as well, such as an intended price increase ordered by government authorities, and an increase in the price of imported goods after the devaluation of the state currency).

Price is the amount of money paid for a unit of product. If the given amount of money increases for any reason, the price of a good will increase and the purchasing power of money will decrease in respect to that product. In addition, as price increase is general, then in all respects (*Drábik, 2002*).

Still, the official explanation of inflation – that there is too much money compared to the volume of products – is misleading. This statement simply gets around the real reasons and focuses only one possible aspects of inflation. Everyday experience already contradicts to this exposition since there is no shop – or it is very rare – where buyers with too much money “hunt” the wanting products. Rather it goes vice versa: There are many goods with higher and higher prices which buyers cannot buy because of the lacking money.

Inflation actually means “lots of money” only in nominal terms. The quality, or in other words, the purchasing power of this money is lower as it worth less. Although it is true that within our current financial or rather monetary system the sum of the loans are growing fast, but the value of this debt-based money is constantly declining, its purchasing power decreases.

*Figure 3* and *Figure 4* indicate the relationship between the US dollar and the British pound stock in circulation and their purchasing power between 1971 and 2008.

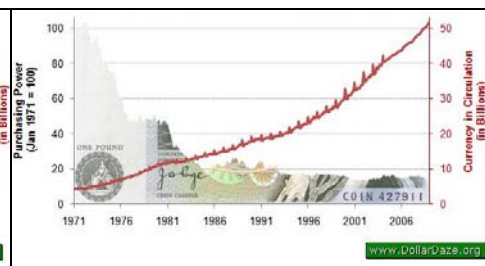
**Figure 3**

**USD –Purchasing power  
and currency in circulation**



**Figure 4**

**GBP –Purchasing power  
and currency in circulation**



Source: *Hewitt and Petrov, 2008*

“Looking at the data, from January 1971 to December 2008, the U.S. money supply increased 16.8 times; this was accompanied by an 81.1% drop in purchasing power of the dollar, as implied by the governmentally-reported CPI” (*Hewitt and Petrov, 2008*).

*Figure 5* and *Figure 6* show similar relationship for the Canadian dollar and for the Australian dollar.

Figure 5

USD –Purchasing power and currency in circulation

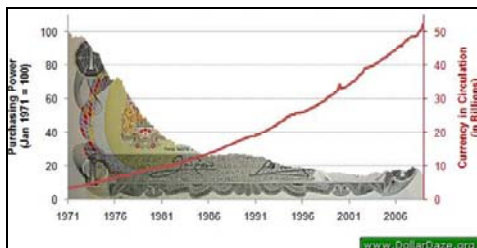
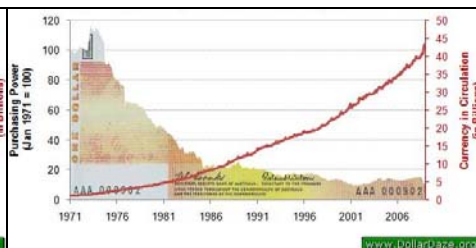


Figure 6

USD –Purchasing power and currency in circulation



Source: *Hewitt and Petrov, 2008*

The most commonly used explanation of inflation is true in case of a debt-free money system, where new money come into existence without interest charge. In case of our interest-based financial system, however, it is not correct. Every time when money created as debt there will be lack of money to buy all the products and services. When we need to use more money for the same product, our attention stuck at the nominal increase of the price and not at the change in the quality of our money, as its purchasing power has decreased. *The declining purchasing power of money is the direct consequence of the exponentially growing debt resulted from interest charges.*

Let us think it over: To pay the interest on our debt, it is not enough to apply for a loan with the same amount as previously, because it would just roll our current debt over and accumulate interest charges. In order to reduce our debt more money is needed, therefore it is inevitable to raise the prices of the goods and services, to enhance productivity, and to reduce the costs of employment and overheads. To gear up productivity, however, there are physical and ecological limitations, and there are social and biological ends to wage reductions too. The growth of interest on the other hand has no end (*Drábik, 2002*).

### Unemployment

The prior statement that there is always lack of money to buy all the goods and services has to be extended, since service can mean offering oneself for a job as well. Hence, there always be certain amount of people who simply cannot be paid for a job and therefore will not be hired. Or if so, it means that payments for existing employment need to be reduced; but it has its limitations. Taking from another perspective – as it was also mentioned – companies need to reduce wages to be able to cover the costs raised by their debt. After a certain point, as debt increases, however – and the firm did not go bankrupt already – certain amount of workers will need to be fired so others can keep their – more or less normal – standard of living.

So if we force only restrictions and the unilateral monetarism, restraining inflation will only be possible by abolishing millions of jobs and workplaces.



## COMMUNITY CURRENCY

During the Great Crash of the 1930s many banks in the United States had been closed, a great portion of the deposits held by them had been lost and for many communities the issuance of own currency became necessary. These communities had many unemployed who not only could but wanted to work; the cities and people still had their needs and resources were still available. The only thing that was missing is the “web of contact” (money) that could allow the flow of the local work and resources and ensure their participation in production.

The *main purpose of community currency is to complement this missing web*, to bridge the demand with supply, the desire with capacity, and to match the unmet needs with the underutilized resources. (These currencies therefore are also called as complementary currencies)

The spread of *globalization (of the “debt-money system”)*, the continuous increase of wealth transfer, the widening gap between rich and poor led many regions into difficult economic circumstances. This is especially true in regions where traditional (long lasting) factories closed or moved somewhere else, but the situation is dramatic in many other, more complex regions too, where people suffer from high rate of unemployment and work in uncertain jobs providing insufficient income. The complementary currency system enables communities to use their underutilized resources and abilities to mutually help each other.

According to experts’ estimation about 3000 such working communities exists in the world. About 400 in the UK, more than a 100 in Australia and New-Zealand, many can be found in Canada, Europe and in the United States, and there are a few in Mexico, South-America, Africa and in Asia. In certain communities the number of the members is below 100 while in others it is well above thousands. Some were initiated by a few innovative people in response to downsizing and insufficient money supply, whereas some was introduced by non-profit organizations or by regional development advisors who wished to improve the economic conditions of a specific region (*Brantd, 2001*).

Taking the initial analysis into consideration, however, it is important to note that local currencies concentrate exclusively on the two key functions of money: standard of value and medium of exchange. This way the speculation with and accumulation of money is extinguished.

The best way to achieve such circumstances is to introduce money with negative interest return as developed by Silvio Gesell. Silvio Gesell was an unconventional economist, who sought to know the true nature of money. In his book – “The Natural Economic Order” – *Gesell (2004)* proposed his new concept of ‘free money’. Later, the economist John Maynard *Keynes (1936)* stated in his book, the “General Theory of Employment, Interest, and Money” that he believes the future will learn more from the spirit of Gesell than from that of Marx. His suggestion was to create a system where money loses its value as it is withheld from circulation. The secret of that would lie on stamps placed on the reverse side of the bills. At the beginning of every month a consumer have to purchase a stamp costing 1 or 2% of the face value of the bill and paste it to the bill. In other words,

the value of the money decreases if it is not used. Accordingly, those who possess this bill have to use this money first and this way these bills start circulating one after another. Hence, money would really have the function of promoting economic activity. At the end of the year the institution of issue would exchange the stamped currencies to new bills that are empty on the back so to be able to paste further stamps on them. Moreover, the costs of stamps collected each month can be spent in the economy or used for social projects, thus keeping the region's money supply in balance.

Current complementary systems use simply interest-free money, whereas many instances of the 1930s based their money system on negative interest.

### **The Worgl Experiment**

Also in the 1930s by the brave decision of the major of Worgl – a town located close to the German border in Austria, Tyrol – Gesell's theory of free money was put into action. The Great Depression brought serious recession to the small Austrian town. Production became stagnant and unemployed people were found everywhere. The population of Worgl at that time was a little less than 5,000, while the number of unemployed reached over 400. As income from taxes dropped sharply and the town's debt grew, Worgl was facing financial ruin. Michael Unterguggenberger the major of that time attributed the economic breakdown to the stagnation of money. Currency was saved but not circulated. If money does not circulate the number of unemployed will increase, production will decrease and consumption will slow down. To improve the situation he decided to introduce Gesell's idea of free money. In July 1932 with the agreement of Ministry of the Assembly the town decided to issue local currency which was only valid in that town. This action started new businesses, created work for the unemployed, and paid money with the new local currency called 'Labor Certificates'. The town then constructed roads, public institutions, built even a ski jump and made payments to the unemployed using the local currency. A miracle happened. The local currency which was initially paid as salaries rapidly started to circulate throughout the town and by circulating, money performed economic activities several times larger than its value. The town's income from taxes – which had been stagnant – started to increase steadily. The secret of circulation here as well rested on the previously mentioned 'stamp scrip scheme' (Oliver, 2002; Weston, 2008; Cobrssen, 1991).

Sealing was a very elementary, but efficient form of achieving the above goal. Establishing a money system based on negative interest, however, is much more convenient in the age of smart cards, electronic accounting, and local changer systems than it was at that time. (A simple charge on the account would work).

This small step provides many advantages:

All the participating members of the new system will be interested in the spread of the new currency. The organizers of the actual systems have realized that the founders remained the strongest promoters in the course of time and therefore some system simply tails off as soon as they cannot deal with the expansion of it.

Paul Glover, the founder of the Ithaca money system admitted that most of his time is spent with the recruitment of new members. This is typical since the other

participants have no major incentive to actively promote new members; they can simply keep the currency until they have some use for it. In contrast, in Worgl (and in many other similar systems of the 1930s) everyone was motivated to convince the bakery, the butcher, and the family members to accept the new money. „One of the reasons that local currencies have multiplied in number today but have not spread as widely as in the 1930s is this structural difference in motivation for member participants. More jobs will be created. Community currencies now tend to create no more jobs in the community than normal currencies. This was not the case in Worgl, for instance, where we noticed that *every shilling of Worgl money created fourteen times more jobs than a normal national Shilling*” (Lietaer, 2001).

The social and ecological degradation of the second half of the 21st century are without historical precedent. Since the actions and tools of the central authority failed to front and neutralize this phenomenon, the local communities became the most logical place to do something about it (Lietaer, 2001).

In this study I essayed to report that the current money system has so many vital deficiencies that the considerations of new approaches became imperative.

Community currency is only one potential solution where the degree of potentiality depends on the economic and political conditions of the structures in which communities operate.

Probably the best solution would be to completely change the basis of the current institutionalized money system highlighted in the study. As it seems, however, a very time- and energy consuming project with many political difficulties, the idea of organizing solutions within more or less smaller communities had come into perspective.

## CONCLUSION

The concept and the use of money degenerated far from its original purpose. Nowadays, money is created as debt by the central banks and – in most cases – by commercial banks as well in the form of loans and credits. So when money get into circulation indebtedness comes into existence without so much as goods and services would have been traded. Currently, events in the financial sector primarily adjust to the extent of the indebtedness and do not really represent the tendencies of the real economy. Within the prevailing global financial and monetary system there is not enough money in circulation in a given country unless it has a high degree of indebtedness; because low extent means there is insufficient money supply in circulation to serve the needs, the operation and the growth of the real economy. An ever growing debt, however, cannot be paid forever which leaves the controllers of the mechanism three options: Let it collapse; issue interest-free money in order to temporarily liquidate the debt and let the system operate again afterwards; or reform the whole system by eliminating the current debt-based mechanism.

It is important to realize that the issuance of money in the form of interest-charged debt has grievous consequences. In order to pay the expenses of the growing debt additional amount of debt-money needs to be supplied. It creates

such a forced economic growth that consumes the non-renewable natural resources and irreparably destroys our ecosystem. The actual mechanism neglects human needs and rather emphasizes its own growth demand. A system based on debt and interest therefore cannot be set up to “zero-rated growth” and this creates an irreconcilable contradiction between the economic and ecological requirements. Therefore the elimination of the interest-based mechanism in our current monetary and financial system is a must as early as possible. The actual study presented only one alternative solution but there are others in consideration as well. The point is to take a holistic view, concerning other factors – affecting our life – as well and not focusing solely on the societies’ monetarist and financial activities. *This can only be achieved after reforming the current money system and its mechanisms.* It is the economy that should serve the people and not the other way around. This is the only way by which the concept of *sustainability* can apply.

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## THE PREVENTION OF CRISIS AND THE COMPETITIVE EDGE AT SME'S

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### **ABSTRACT**

*SME's represent a very significant force in the Hungarian economy; it is important to be familiar with the state, development, strengths and weaknesses of the sector. The rating of the SME's has changed a lot recently. In 2004 and 2005 they increased the limits for determining the classification (annual net income, total assets). That is why lots of companies' situations have changed; formerly medium-sized enterprises now qualify as small businesses. Nowadays there is no single key to survival; several business factors must be considered. Companies must identify deteriorating conditions in time, accept the need for change, effect a quick response, provide continuous monitoring, and adopt a planning and controlling perspective. Domestic firms typically face liquidity problems; daily tasks and taxation issues cause a lot of trouble. They often feel that they are unable even to manage their own operations, let alone prepare a financial plan. The crisis has changed the style of leadership; usual labor relations have transformed. The acquisition of orders and reasonable cost reduction became an extensive "task," one that is no longer solely the boss's responsibility and interest. Because SME's have become quite heterogeneous, it is hard to define to whom the method presented in this study or this way of thinking should be recommended. In my opinion, the size of the investigated firms is not so important. The important thing is that those companies that rejected such a way of thinking should consider their activities and start using financial planning tools.*

Keywords: SME, financial planning, crisis, liquidity, effectiveness

### **INTRODUCTION**

The planning and the retrospection are inherent in everyday life, is present in our daily lives and in the economy. The planning is very important in the businesses and in the practice of the business operation. We elaborate plans based on information and strategic objectives, which sometimes look back to determine how satisfied. The SME's are very important area of the EU's economic priorities so of the Hungarian economy too, that's why very important to deal with this area by economic analysis.

The SME's have special problems but they dispose with specific break-out capabilities and strengths. Even on their economic characteristics is necessary the careful analysis by these enterprises, in my opinion they need for financial-economical help wherewith the SME sector in Hungary could develop.

### **THE IMPORTANCE OF THE SME'S**

If we compared the Hungarian economy to a pyramid then we can say that the SME's located at the bottom of the pyramid based on the number of enterprises

and their employees. They employing the most of the labours, they are the driving force for development; they give the significant proportion of the GDP.

The SME-s size is generally small relative to the market they have no control over the market,

they are not able to influence prices, so they are price-taking. Relatively they are only a few buyers in contact so the behavior of a customer is significant impact in their business operation. For example when a customer does not pay, this situation brings the enterprise to a dangerous situation and this means vulnerability (debt rounding). They largely depend on the political and economic regulators and their variations as well. Their flexibility is reflected in easier for could change their activities, the organization is smaller and the information can easier flow at the enterprise. They can make decisions more quickly, the entrepreneur both the owner and management usually, this option can be used in the above negative factors are offset. But this raises further problems, as the owner = family = management "formula" follows, that the entrepreneur" decisions based on their routine without economic calculations. They compared themselves tolerant, and let's be honest nobody likes to face his own limitations.

Their additional features: their activities are not too complex, have less capital reserve, so they are more sensitive to environmental disturbances (for example new standards, appearance environmental and health regulations, change of the tax system), they can less resources able to mobilize to their development. (Not to mention that medium-sized firms appear to be strong – in the domestic relations – due to smaller size constitute in the EU market like a small company.)

The SME-s can react with the increasing their competitiveness to the challenges of EU joining and the formed crisis. The most important possibilities: cost reduction, product/technology innovation, quality improvement, market research, competitions, vertical expansion of the activities (operation without subcontractors). By a company we could increase the efficiency in many areas, such as the fundamental processes, support and management processes.

Now, I would highlight the support processes; specify the planning method more specify the support of the financial planning.

It is important to clarify that the support should be permanent, not a casual activity is involved. So the competitiveness can prevail in longer-term which increase permanently the effectiveness of the company's compared to their competitors. We have to know the practicability of the financial planning is offended to everyone so we have to calculate this advantage can be to neutralize.

## **ABOUT THE FINANCIAL PLANNING**

The effective management of finances is now essential for all businesses. If we regulate the liquidity well and our investment and financing decisions are good the position of the SME's can be improved. Usually the investment strategy is highly incomplete at the large proportion of the SME's, the analysis of investment opportunities and the evaluation of alternatives are missed. The constant re-evaluation of the investment it is particularly problematic.

They usually decide to buy a machine or to the start of an investment that they do not draw up feasibility studies before, they do not expect payback time, they do not examine how much will be the first cost to provide a product or service.

Of course the financial part is not be separated from the investment strategy, the resources for the financing of the business activities it is must to determined. This is the self-finance and the finance with foreign capital. Both have a price, we have to thing over which version – possibly mixed – is the best. The financial plan is an important part of the business planning which emphasizes the focus to the effects of financial planning, to the forecast and timing the revenue and expenses.

At first step this plan uses the sales, production, investment, acquisition and budget data. This data based on historical data and on estimations. This includes the extraordinary events so the financial planning is a forward-looking process. It made not only because of forecasts but expressed decisions too.

“The aim of a financial plan is reflected of decisions at the financially effective operational and strategic horizon operation of the ownership of wealth.” (*Sinkovics*, 2002).

The condition for the efficient operation is efficiently working assets to finance, and the use of the resources give us eligible increment, the applicant resources will be proportional with the outputs. All of this we have to ensure with the lowest possible capital costs under reasonable risk. The financial plan is ensured the healthy assets and liabilities ratios, the liquidity, the efficiency and the profitability.

The functions of the financial planning:

- informing function: give information about the assets, income, financial position, about the aims;
- orienting function: shows a common direction of the activities;
- control function: compares the plan and actual figures.

Each firm resolves the financial planning differently. There is no single procedure but it can be problematic when someone who has other overwhelming tasks does this. One of today's practice they apply separate planner but this does not exempt the company management from the planning decisions.

The best practice when sets up separate expert group for the planning projects. Of shore this cannot be solved permanently at the SMEs, but a good solution is that if such a planning work than one project more experts from various professions work together. An applicable solution is when at start performs these tasks the company's accountant with the manager because they understanding of the business operation and the data receiving to them.

### **The financial planning process**

The financial planning it can be simplified realized the financial leader tries to give answers for the company's owners and managers of their peers' questions through the planning.

A successful planning process takes into account:

- the company's investment opportunities, the resulting long-term of assets deposit and theirs financial sources;
- the present financial and other economic decisions probable consequences of the company's situation and functioning;



- the possible decision alternatives through which we can select the company's actual financial decisions;
- followed by the actual decisions, to create known. "final financial plan"
- the final step follows delayed in time when we are comparing the realized economic and financial processes with the financial plans.

### **Liquidity planning**

The liquidity is an ability of a firm's that shows the company's possibilities to pay the mature commitment on a particular date.

The four basic-question of the liquidity:

- How quickly can we sell an assets? (monetized possibility)
- How to finance the assets? (cover of the assets, to in comparison the liabilities)
- What currencies are now available? (current assets)
- Is delivered a payment obligation of each period? (the in payment and the liquid assets exceeds the out payments?)

Cash in-flow plan is could be prepared from the sales plan, budget and cash out-flow plan is could be prepared from the production plan on the basis of sales. For this we can fit the other planed items (interest, taxes, investments and theirs financing) so we will get the periodical total cash flow.

Also includes to the liquidity planning that we might to make a plan for the resource gap if we involved additional resources and how to use or invest the unnecessary resource. Liquidity indicators are expendable too, which exam the proportion of the monetized asset and the current liabilities. (Cash finds, liquid securities and receivables.)

### **Profit and loss account forecast (Profit planning)**

As can be seen from the figure, on the focus of the effectiveness is the profitability and solvency. The levels of the calculation of income primarily give the amount of hedging and the profit of the ordinary activities because the manufacturing activity is in the forefront of planning decisively.

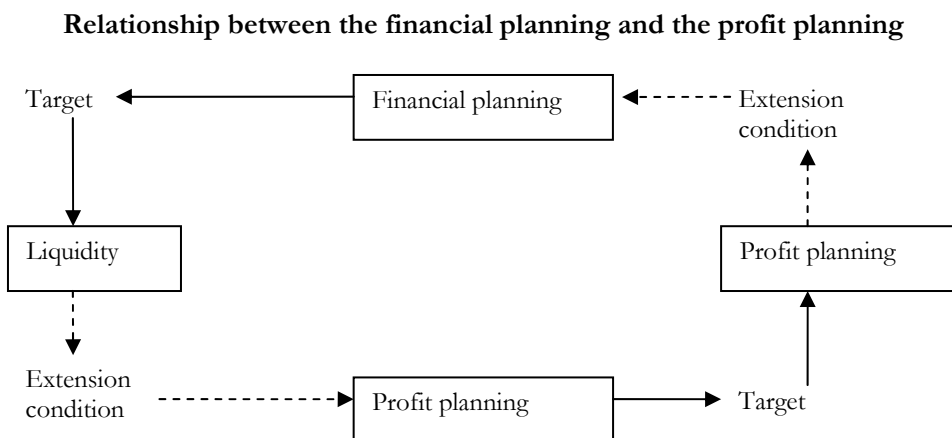
Through the profit planning is happened the quantifying of the profit-affectless incomes, expenses and costs, in different hedge steps usually.

Since the capital planning is a central issue of the planning so the liquidity and the profitability are in competition with each other. If we want to be too liquid than is not exploited our cash but if we have not any reserve than the liquidity get in jeopardy (*Figure 1*).

The closest interpretation we can start from the data of the sales and production plan when sales is determined the planned from market to market (average prices, volume) take into account their changes.

The part of the direct costs and indirect costs is definable if we known about the starter stock and sales plans. This is essentially similar to the income plan but also refers to the result next the profits as well. Particularly in commercial enterprises should not be forgotten the stocking activity either because the changes of the stock levels affects to the result. The increasing growth of capital acts with involve of stocks and deteriorating profit though the stock is "ours", so does not reduce the wealth.

Figure 1



Source: Szóka, 2007

### The forecast of the cash flow statement

The cash flow is all the money-flows of a company what is to say the difference between cash inflows and outflows during that period. The analysis of the profitability does not provide sufficient information to the assessment of the occurred changes in financial position. This claim is satisfied the cash flow statement and also the content is supplemented the data which are in the balance sheet and in the profit and loss statement.

It shows the company's operational and other funds will be devoted for which purposes. From the aspect that the cash flow forecast will be effective two important facts are critical. The first important factor is the cash flow statements will be compiled which time breakdown (monthly, quarterly), the second important factor is this statements how often made.<sup>1</sup>

The task of the cash management is defining and providing the minimum level of liquid assets which ensure the normal course of business. This indicates a relatively low level of cash.

This is quite a difficult task in practice if the liquidity sinks to low level then the management could be jeopardized. The liquidity can be achieved if we dispose exact information about the stocks, the production and about the expected demand.

We can further reduce the required stocks level if we organizing more efficient the production with lower stock levels and with suppliers – if may – “Just in Time” contracts will be concluded.

### Break-even point analysis

Due the analysis we should to know as the product, investment or as a whole company when we become profitable. The break-even point is that volume of sales

<sup>1</sup> “The problem with the balance sheet and profit planning is that the realization measurement of this plans complete closure is needed monthly or quarterly” (Sinkovics, 2002. 59. p.).

revenue or amount of the break-even point which covered the ongoing not be distributed costs. Then not will generate nor operating profit or operating loss for the company. It shows when we reach the level of revenue that will be needed to cover for all variable and fixed costs, when the total revenue and total costs are equal.

This instrument can be recommended for SMEs, for any reason because relatively easy to determine how many units have to be sold and what time would we get zero results.

(In the case when we product only one unit and when the unit selling price is higher than a variable cost per product and may be covered by the fixed costs for the surpluses then we get the break-even point.)

## DISCUSSION

### **SME's financial planning system**

A good planning system for SMEs:

- increase the transparency, timeliness and usefulness of the information,
- focusing the attention of the company's management to the profitable/loss products, processes,
- encourage the communication,
- makes visual and transparent of the current state,
- taking into account the cost-benefit approach, the practicability,
- with non-financial indicators will complement the company image, and
- operational and strategic aspect can prevail in it.

The tasks is defined and organized in the plan, the plan coordinates the subtasks and optimizes the use of resources, so this will help respond to changes in the environment. The conscious Corporate Governance is grounded by a specific expectations worded in an efficient way in management. In general, the planning is started with traffic planning, sales market test by the professional literature. We plan from market to market and from product to product the quantity sold and theirs price.

The capacity (personal and technical) and the stock level changes (uncompleted, semi-finished and finished) can be adapted to the traffic volume plan. It has shown the need for working capital and labor costs. The deficit or surplus entails with consequences in the areas of human resources and investments. (To recruitment or sent? Invest? From what?)

This production plan defines the costs and the secondary passes and general costs still be considered.

Thus we get the result plan which is issued about the operating profit. This will be continued in the basis of profitability and balance sheet until the final profit. The impact of financial planning assessments the financial plan, namely the financial plan which in terms of liquidity, is examined the coherence of the total revenue and total expenses (*Horvath and Partner, 2001*).

The basic requirement of the sales activity is the appropriate volume, self-cost, consistence and price levels of sales. His job is to the company's sell in the future, the policy instruments to achieve the applicable sales and the implementation of

sales devoted to cost to determine in a specified period. The sales plan is based, generally, all other functional operating plan eventually this ends through the production and purchasing plan to a financial and results plan.

So the sales are a target-oriented economic task which is included the sales policy development and decisions. Optimal performance of these tasks in the firms are several tools, methods are available.

If these procedures (eg, market research and sales methods, pricing policies, product construction, advertising, etc.) not just in some cases but systematically are used built on one another, then we are talking about marketing.

However this simple financial plan cannot be found at the significant proportion of the SME-s therefore it is necessary to teach and accepted such of skills. After the collecting of the base data, in light of trends and changes plan variants have to be developed for the revenues and expenses, which is determined for us the company's financial plan presented in the above course of action.

It should be monitored that not only the revenues and expenses are of the background of controlling the financial calculations but the liquidity and its forecast namely, that the in and out payments how are they face each other on-time (Reke, 2007).

We must plan for the cash sales and credit sales separate, for the credit sales we could used the customer tables (by age) which indicate the claims "age". (The older our unrecovered claims the more probable that is not expected to influence.) The planned and the actual data of sales is planned formalized too, we represent graphically and cumulatively the monthly data.

So it can be seen plasticity and easy to understand plan and compliance data in front of us. We need to look a month, but at least quarterly the discrepancy between the plan and the actual data too. They show us what is due to deviation from the plan.

The most common examples:

- the falling away of the existing customer group and the old customers;
- changes in market share, the increasing / weakening role of the competitors;
- trends of the whole market sales;
- an unexpected stock trend;
- introduction of new products, new market break;
- inflation and other economic factors;
- pricing policy (if the prices do not accept, but formed).

Modifying effect of these price and volume should be taken into account during the planning; the base data with these effects should be modified. Examine the causes of deviations because it shows us the next step towards abolition of the derogation. In my opinion for the SMEs' s the best planning method is the rolling planning because of the frequently updates results in higher accuracy.

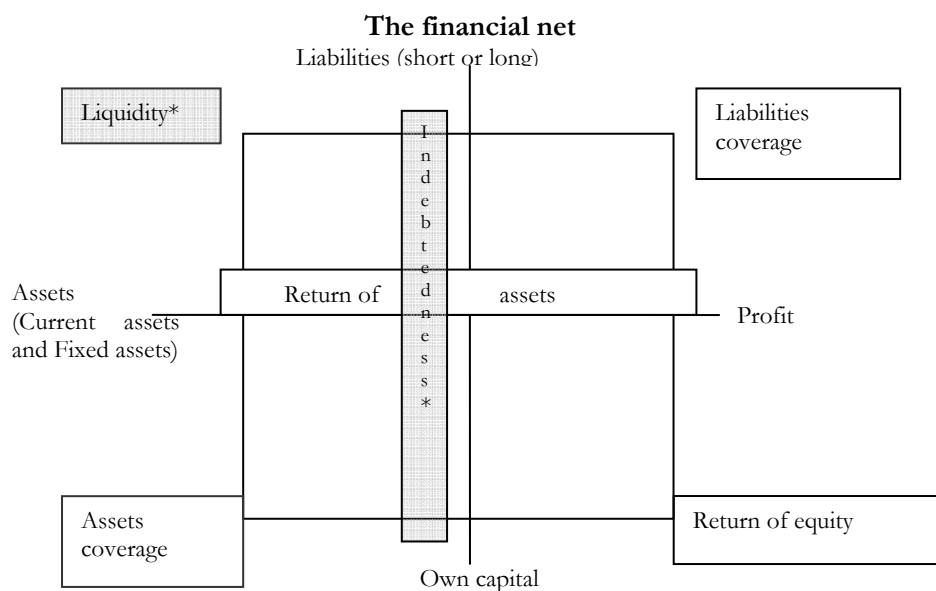
The profit plan is needed to compiled based on the past three years data – and based on the expected significant changes – the data is needed expand to quarterly level and then using the technique of rolling planning push forward with a quarter of the plan horizon expect of the known / expected changes. Of course, these data should be checked namely, we should be analyzed the plan/fact gap sometimes.

## FINANCIAL NET IN THE SYSTEM OF FACTOR ANALYSIS<sup>2</sup>

My financial net shows in graphical form the connections of indicators and aims which used in the financial planning. It is shown that in the vertical axis the Commitments, and the Capital is in located, while in the horizontal axis are the Assets of the Result.

When we square this financial nets and look at the quarters lines it is shown overall, constitute an own net/system the compliance of liabilities, the return on equity, the assets coverage, the liquidity, the profitability and the instruments debt levels indicators (*Figure 2*).

**Figure 2**



*\*The financial short-term indicators are shown in gray so it should be more often.*

Source: *Szóka*, 2007 based on *Witt and Witt*, 1994

The net financial shown above, although in fact in compliance with the scientifically based selection of indicators / organizational but our requirements point of view not sufficient because the often examined indicators belong to the SME's financial planning system. So this financial net must be adapted to include these items and indicators.

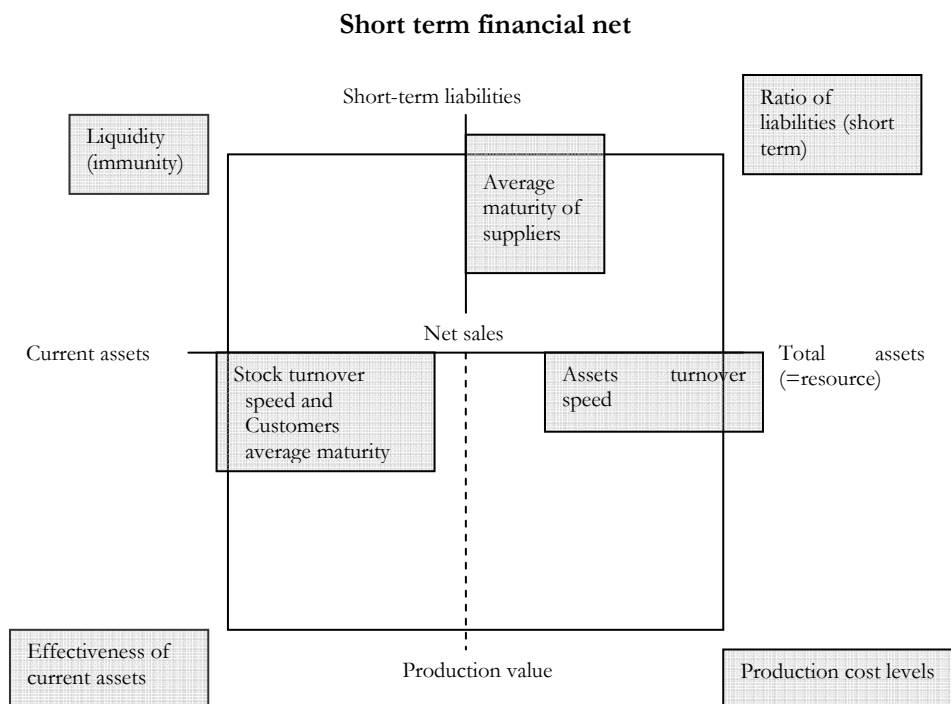
The advantages of this net the visual form which helps to understanding the connection between comparison plan and actual figures and the main aims.

The short-term indicators are shown in gray so it should be examined weekly or monthly during the years of operation. We can see there a dotted line, so this is a little bit compromise, that the liquidity, the stocks, customers, suppliers (both in the

<sup>2</sup> See in my doctoral thesis: *Szóka*, 2007. 153-159. p.

short time) rotation speed/average duration – we investigate in one system. Independently it is established the short term, more often calculated indicator logical system in *Figure 3*.

**Figure 3**



Source: *Szőka, 2007*

Of course the indicators aren't magic tools. These indicators help us to ask (good questions) but don't give us answers. In this paper I deal now with the short term financial planning whereas in times of crisis it is more important. For the indicators for all companies of course, there are no valid criteria, these emphasizes the changes and we have to answer for the changes.

The financial planning monitoring is difficult to past in the daily work, but it can be done once in a month.

The essence is the rapidity; we have to know how much the time-limit of a measure is. (Intervention-time, effect-time, result-time) Instead of planning we should to tried forecast continuously this indicators and this indicators is should to reviewed weekly using help the accounting.

### CONCLUSION

According to the Hungarian Central Statistics Office about 10% going bust of the newly established Hungarian enterprises and approximately 38-40% of them are not

survive the 6 years. So we can see that especially now, during the crisis the intervener quick action is needed for every business with the right tools. The domestic firms struggle with liquidity problems typically, suffered from the daily tasks, and taxation.

It is a wide-spread opinion that in the SME sector there is not enough attention paid to financial planning. However nowadays we are not in the ages when an entrepreneur can act his own mind and head, therefore there is/would a need to present the functioning based on financial point of view.

In this publication I have tried to present for SME's an easy to use, simple, but also newness-including financial system, which could be efficient, because it is complex, but sufficiently simple and introducible, so it will not scare the entrepreneur who are just companying with planning and controlling.

The system is adaptive, so conformist, the structure and with the change of used indicators is able to satisfy the varying demand. The system can said stable, it is working in equilibrium, because the applied controlling methods and the indicators made with scientific base are making an integrated system, not expressions of a capricious willingness.

Usage of this system is justified, because we know the fact, that there are very much unsuccessful working enterprises in Hungary. The toolbar of financial planning and controlling, and the information flow become real driving force through human interaction, however in the case of SME's it is not so easy to form the organizational and communication system of it. Training, forming point of view has a big importance, for this job-enrichment is a good accessory, but no bad, when a real controlling-minded executive or expert also works – even in part-time work - in the article.

No need to be perfect, get the best, and improve sometimes, because building the controlling mechanism not a one fold event, it is an ongoing developing process. Because of strategy, environment, management, controlling system can change this dynamism for SME's will always exist. This dynamic work should build in to the workers and managers thinking method. The goal is everybody understands and accepts the importance of this. Simplicity is important also in reports as well in the usage of understandable managing accessories. We should understand that these methods are not against the organizational processes, rather the “coaches”.

At present times the most important key for survival is not based on only one factor, rather the existence of more corporate factors which are the recognition of worse going conditions on time, acceptance of the need for change, quick reaction – even at the questions of organizational changes – and the adaptation of continuous monitoring, planning, controlling approach.

The Hungarian enterprises typically fighting against liquidity problems, milling in the daily tasks. They often feel, that it's unable to control even their operation, so not to make financial plan. Crisis had changed also the management style, the used work relationships have formed, organizing the orders, the rational cost reduction became also important task for SMEs as well, so it is not anymore the task of the executive.

We shouldn't walk beside this opportunity – which can be also competition advantage – and strongly recommended to use this system. The invested time and few capitals will gratitude, and so our financial processes will become manageable.

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## ADVANTAGES AND DISADVANTAGES OF THE EUROPEAN MONETARY UNION

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### ABSTRACT

*The aim of this paper is to review the European Monetary Union's history and development and to describe its advantages and disadvantages. I chose this topic because the EMU is one of the highest levels of integration forms and still unique in history. The member states adopted a single currency, the Euro, a single monetary policy, and coordinated their macroeconomic policies. Due to this high integration, the Euro may yet become a rival for the U.S. dollar. The size of the EMU's geographical area is vast and still expanding. As it spreads, the Euro becomes a more and more relevant currency for international trade, causing a big change in the world's economy. Aside from projecting the Euro's spread, I analyze the special convergence criteria that must be observed by its member states, demonstrating why these criteria are inadequate and why they are so difficult to observe for some countries. It is important to understand the issues facing the Euro and the countries that use or are considering using it as more and more economists discuss the advantages and disadvantages of the European Monetary Union. Many arguments exist for the EMU and many exist against it. Since Hungary, my home country is an EU member state and we intend to join the EMU--although the accession date was postponed several times because our economic indicators did not meet the criteria of the EMU--it is important for us to be knowledgeable about the current situation.*

Keywords: European Monetary Union, currency, monetary policy

### INTRODUCTION

The European Monetary Union is an agreement among the participating member states of the European Union to adopt single currency, single monetary policy and coordinated macroeconomic policies. The single means that the participating countries can not pursue monetary policy at the national level. The European Central Bank is responsible for the monetary policy of the participating countries. This institute is responsible for the monitoring of the money supply and for setting a key interest rate instead of the national central bank. The member states have to follow similar macroeconomic policies therefore the EMU can function well.

Earlier there were attempts to create similar union in the history (e.g. Roman Empire). As follows I made a review from the main period of the EMU establishment.

## **History of the EMU**

### *Bretton Woods*

The Bretton Woods system controlled merchant and financial relations among the world's major industrial states.

44 nations participated at the United Nations Monetary and Financial Conference. These countries wanted to rebuild the international economic system.

The participant countries signed the Bretton Woods Agreement in July 1944 and established the International Bank for Reconstruction and Development (IBRD) (one of the World Bank Group institutions) and the International Monetary Fund (IMF). These Institutions regulated the international monetary system.

These organizations became operative in 1946. In the Bretton Woods system each country has to adopt a monetary policy that means the currencies of the countries were fixed to the gold. The currency band could fluctuate plus or minus one percent. The system collapsed in 1971, when the United States decided to abolish the fixed link between the dollar and the official price of gold, which ensured global monetary stability after World War Two. This put an end to the system of fixed exchange rates.

### *EMS & ERM*

Some west European countries established their own exchange rate mechanism (between 1972 and 1977), this was called “snake”, because the graph of the exchange rate fluctuation looked like a snake. These countries decided to prevent exchange fluctuations of more than 2.25% between the European currencies by means of concerted intervention on currency markets.

This led to the creation of the European Monetary system (became operative in 1979), which employed an exchange rate mechanism (ERM). Function of the ERM was to obligate participating countries to hold exchange rates fluctuation of their currency within an acceptable band. Exchange rate of each currency had to link to the reference currency, which called (ECU) and this was a heart of the EMS.

The ECU was a “basket” made up of the currencies of the member states. The ECU calculated from an average of the participating countries’ national currencies.

The system was adjustable because the band of the currency fluctuation was plus, minus 2.25% for the participating countries, but Italian lira was an exception, because the fluctuation margin of lira was 6%. The UK was not part of the ERM, but its currency was part of the ECU. The Central bank of the participating countries had to intervene, if the currency wanted to move outside the acceptable band. The central banks can keep the currency in band by buying or selling it.

### *Creation of the EMU*

The EMR was successful, mainly between 1983 and 1987 because the participating countries become more stable. As the result of exchange rate co-operations, the German currency (the Deutschmark) became “anchor currency”, because it had been such a strong currency, that the ERM countries took German monetary policies. More EC central banks followed the decision of the German central bank.

Germany and France collaborated in economic and monetary integration, before the EC meeting. Leaders of these countries initiated the creation of the European Monetary Union (EMU). The establishing of the EMU helped for example the single European Act (SEA), which facilitated the completion of the single market, furthermore the council agreed to the liberalization of capital markets. In 1988 the Hanover Council meeting was held, where Jacques Delors the president of the European Commission proposed a three-stage plan to Economic and Monetary Union. The committee was made up of central bank presidents, EC commissioners and a few experts. Delors' report was a basis for the creation of EMU.

The Treaty of Rome discussed the creation of the EMU (in Dec. 1990) and the procedure was closed by the Treaty of Maastricht (in Dec. 1991), which included the Delors report and the convergence criteria.

The first stage, which began on 1 July 1990, included free movement of capital within the member states, coordination of economic policies furthermore cooperation between the central banks.

The second stage, which began on 1 Jan. 1994, included convergence of the economic and monetary policies of the member states, and the establishing of the European Monetary Institute (EMI) in Frankfurt. The EMI was made up of the governors of the central banks of EU countries. The third stage, which began on 1 Jan. 1999, included creation of the European Central Bank (the ECB took over the EMI), and a fixed exchange rate and the introduction of Euro. Eleven countries adopted the Euro on 1 Jan. 1999. (Austria, Belgium, Finland, France, Germany Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain).

Later Greece joined, on 1 Jan. 2001. The Euro circulated together with the national currencies for some months then became legal tender. (McCormick, 2002)

## **DISCUSSION**

### **Optimal Currency Area theory**

On the basis of the Mundell-theory, a country's accession to the Euro area can be successful if they have flexible labor and capital flow, they have coordinated economic cycles, and they mostly export to the Euro-area.

In the EMU's case, of the OCA criteria, the free capital flow is most successfully met. Labor flow, however, is not really flexible in the EU because of language barriers, Asymmetric shock effect is becoming more and more visible in the EU countries (*Király*, 2007). The absence of a fiscal policy that supports the EMU's monetary policy and the absence of a coordinated tax policy result in further difficulties.

The theory of the OCA is criticized by several experts because the criteria can only be met after joining the EMU. Emphasis is on the convergence in the monetary integration (*Wiener*, 2003).

### **Convergence criteria**

According to the Maastricht Treaty, every country in the Euro zone (with the exception of Denmark and Great Britain) have to make convergence report which

is a forecast from the conformation of the convergence criteria, beyond that it is include also other economic indicators like unemployment rate, pay, productivity.

The aim of the convergence process is to converge the economic indicators of different countries. There are two types of convergences: nominal (e.g. inflation, interest rate) and real convergence (e.g. GDP).

The convergence criteria are as follows:

- *Price stability*: The inflation rate should not be more than 1.5% points higher than the average of the three best performing member states, prior to the EMU accession.
- *Government finances*: The annual government deficit must be below 3% of GDP and the government debt may not exceed 60% of the GDP, two years prior to the accession.
- *Exchange rate stability*: The member states have to hold exchange rate fluctuation within an acceptable band (+- 2.25%) for two years before joining the EMU. The exchange rate convergence is not the subject of this study since there are only a few countries in the ERM 2, which does not provide enough data to work with.
- *Long-term interest rate*: the nominal long-term interest rate must not exceed by more than 2 percentage points that of, at most, the three best-performing Member States in terms of price stability in the year prior to the accession. (*Európai Központi Bank, 2010; Kende and Szűcs, 2005*)

### **Compliance of the convergence criteria in the European Monetary Union and in the candidate countries between 2004 and 2010**

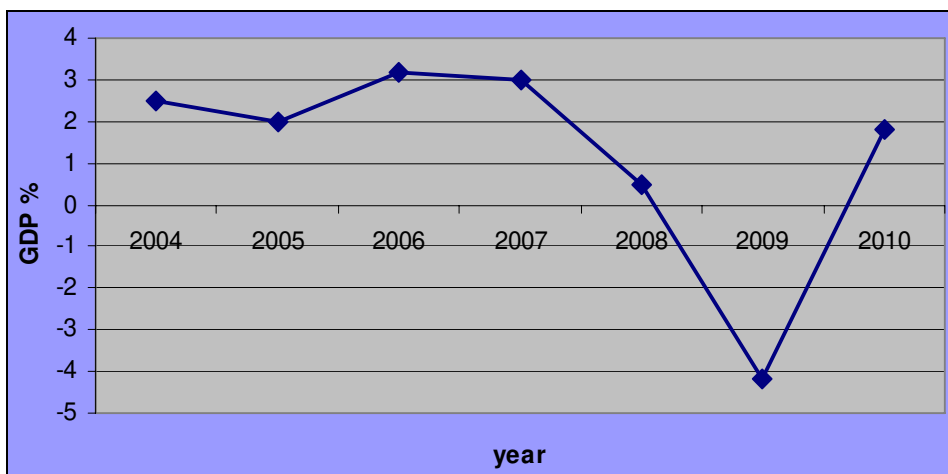
The effects of the 2007 crisis can clearly be seen in the changing of the convergence criteria. The era preceding the crisis was characterized by a stable economic environment. Contrary to this, an exceptionally large financial imbalance was created, partly due to the irresponsible government finances, which created an even deeper economical imbalance among the countries of the world. The global imbalance was a good starting ground for all of this. (The USA showed a considerable balance of payment deficit while the South-East Asian and oil-exporting countries realized sufficient) As an effect of the crisis the EU countries had a significant decrease in the GDP. (*Figure 1: EU27 -4.2%*). The global economic recession result in decaying finances position, increasing interest rate, which also reflect in the increasing countries risk. (*Antal, 2010*)

In the followings I am analyzing how the candidates (with the exception of Denmark and Great Britain) and the countries of Euro area (EU 16) could comply with the convergence criteria between 2004 and 2010 and to what extent the crisis affected the convergence criteria.

On the other hand I did not analyze Denmark and Greet Britain, because they do not make a convergence report, furthermore the economic indicators are better than in the candidates countries, therefore they would be revise the averages of the candidate countries, which would be worsen the result of this study.

Figure 1

## Tendency of GDP percentages in Euro Area (27) between 2004 and 2010



Source: Based on *Eurostat*, 2011

### Price stability

As a result of the negative global shock and economic recession in 2009 and 2010, the inflation was exceptionally low in the EU zone.

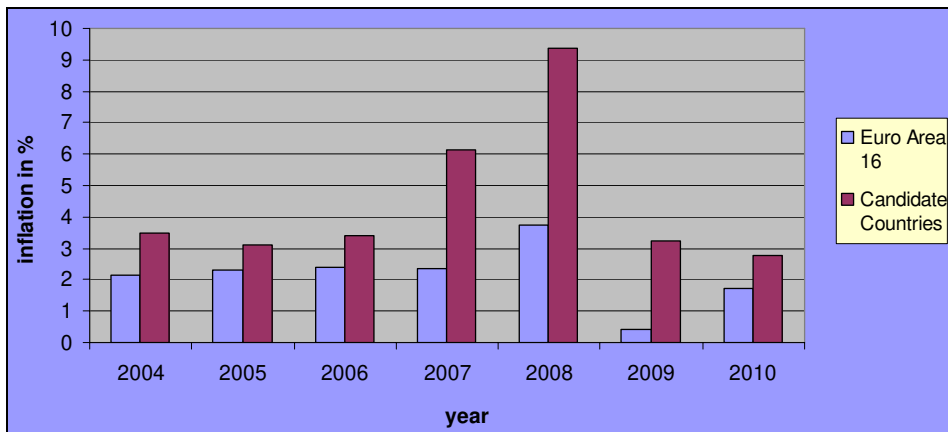
Therefore, the reference value of the price-stability criteria was 1.13%, in 2009 and 1.63% in 2010 (own calculation by data of *Eurostat*, 2011) In Ireland, the negative inflation rate was very high in both years, (-1.7% and -1.6%). In order to avoid distortion, I did not include it in the calculations to determine the reference value.

This way the three best performing countries in 2010 were Latvia (-1.2%), Slovakia (0.7%) and The Netherlands (0.9%). It can clearly be seen from the graph (*Figure 2*) that there was a considerable increase in the price of the oil and food in 2008. The inflation increased relevantly in the candidate countries. It was 15.3% in Latvia in 2008 and it was more than 10% in several countries (*Eurostat*, 2011). Then, with the significant decrease in the price of raw materials in 2009, several EU states realized a negative inflation.

Only three of the candidates and six of the sixteen Euro-area countries complied with the requirements in 2010. Greece had the highest inflation with 4.7% in the Euro-zone and Romania had an inflation of 6.2%, outside it. It can be seen that the highest inflation differences between the Euro-area and the candidate countries became acute during the recession (*Figure 3*). At that time the flow of foreign capital decreased, the loaning conditions became stricter, foreign demand also decreased, the price of raw materials at the world market increased. These factors together further increased inflation. In 2009 the emission, the export and food prices decreased, resulting in a drastic decrease of the inflation. (According to *Eurostat*, 2011 data in the Euro zone: 1.7%, in candidate countries: 2.7%).

**Figure 2**

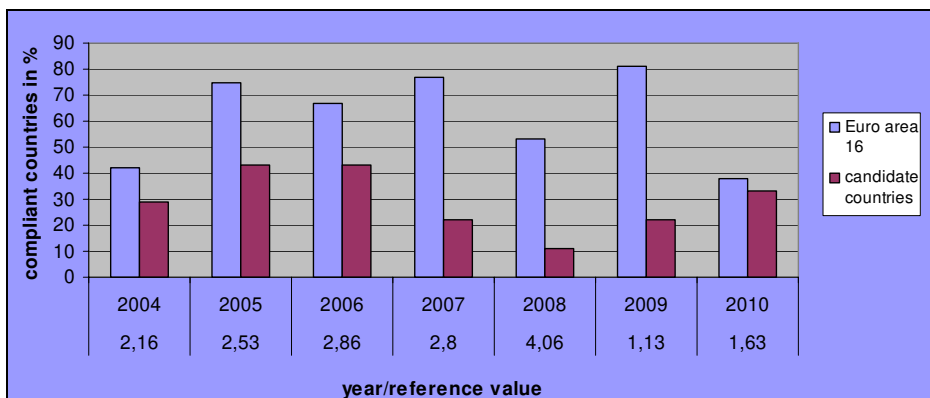
**Tendency of the inflation rate in the Euro area and in the candidate countries between 2004 and 2010**



Source: Based on *Eurostat*, 2011

**Figure 3**

**Compliance of the price stability criteria by the reference value between 2004 and 2010**



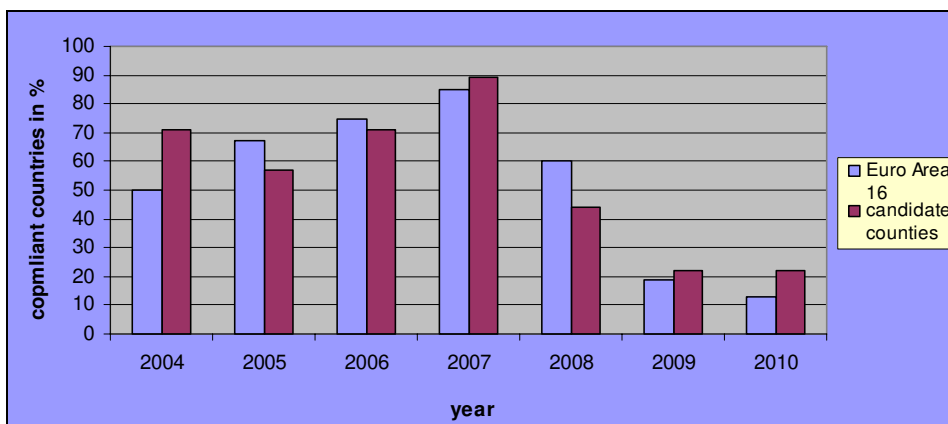
Source: Based on *Eurostat*, 2011

**Finances position**

The economic crisis definitely worsened the finances in most of the countries in 2009. There was a survey in nine of the EMU candidates and only two countries, Sweden and Estonia stayed under the reference value in 2009. Of the EMU states, only three of the sixteen complied with the criteria (Luxemburg, Finland and Germany). Even Germany could not comply in 2010. (*Figure 4*)

Figure 4

Compliance of the annual government deficit in the Euro area



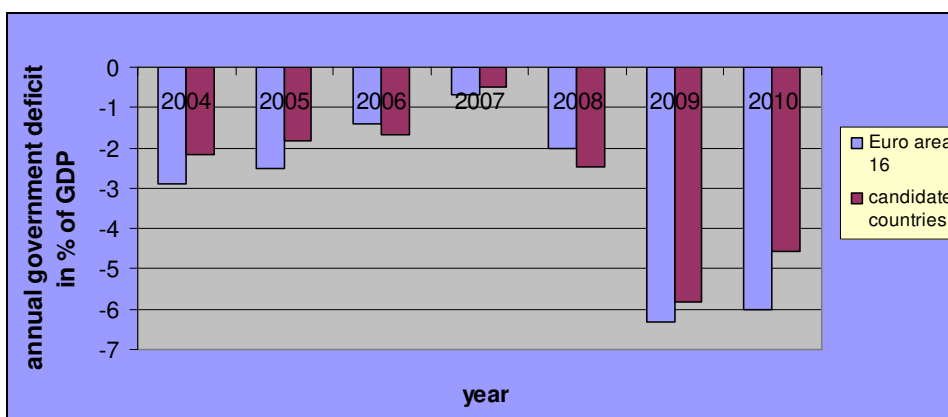
Source: Based on Eurostat, 2011

As it is shown in the chart, on average, the EMU states realized a bigger government deficit than the non-Euro area states (Figure 5).

Some countries resulted in an unsustainably high debt, because of the capital flow to the less developed countries, endangering the monetary union itself. The EMU states' divergence can be seen in the position of state finances. The average is mostly ruined by the high government deficit of Ireland (-32.4%), Greece (-10.5), Spain (-9.2) and Portugal (-9.1%) (Eurostat, 2011). Presumably the reason for this is that the risk premiums in the euro area were significantly lower than in the non-euro zone, because of the single currency. All of these resulted in growing debt and external imbalance.

Figure 5

Tendency of government deficit in the EMU and in the candidate countries

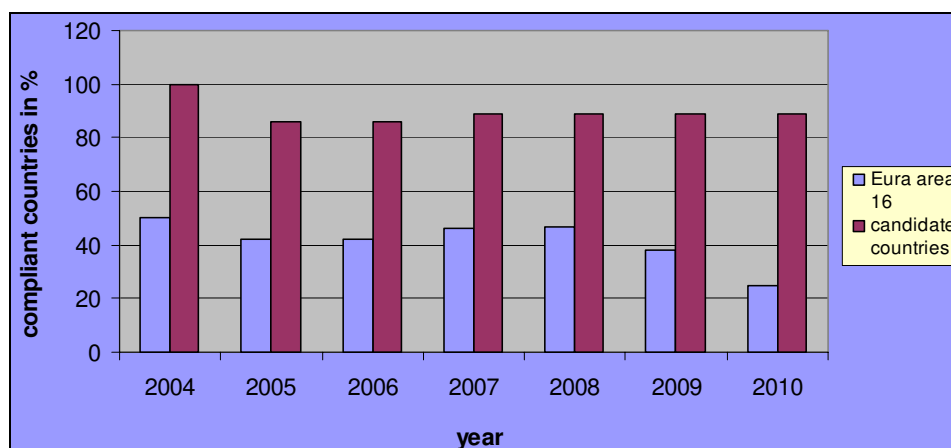


Source: Based on Eurostat, 2011

As regard government debt, only Hungary of the candidates showed a higher percentage (78.4% in 2009) than the reference value (*Figure 6*). Although the other countries were under the threshold, its volume increased. During the study period the candidates performed better than the Euro-zone countries.

**Figure 6**

**Compliance of the government debt in the Euro area and in the candidate countries between 2004 and 2010**



Source: Based on *Eurostat*, 2011

Greece of the Euro-zone is struggling with a considerable government debt, showing 127.1% in 2009, which figure increased to 142.8% in 2010. The extent of the state debt in Italy was 119%, in Belgium it was 96.8%, and in Ireland it was 96.2%, which considerably worsens the Euro-zone's average. (*Eurostat*, 2011) (*Figure 7*).

**Long-term interest rate**

The long-term interest rates significantly increased in the candidate countries in 2009. Because of the decaying economy indicators, the risk premium increased, which can also be seen in the increase of interest rates. The interest rates did not drastically increase in the Euro-area (*Figure 8*).

The convergence criterion was met by almost each of the countries, except Greece, where the long-term interest rate was 9.09% in 2010. Of the candidates, only the Czech and Swedish average long-term interest rates were lower than the reference value in 2009 (*Figure 9*). Lithuania showed the highest interest rate with 12.36%.

It can be concluded that in the EMU the interest rates did not significantly increase, contrary to the decaying finances position, showing market trust in the stability of the area.

**Advantages and disadvantages of the European Monetary Union**

Exchange rate risks, conversion and transactional costs disappear in the Euro-area countries, which triggers a higher-rate of real GDP increase in the countries which



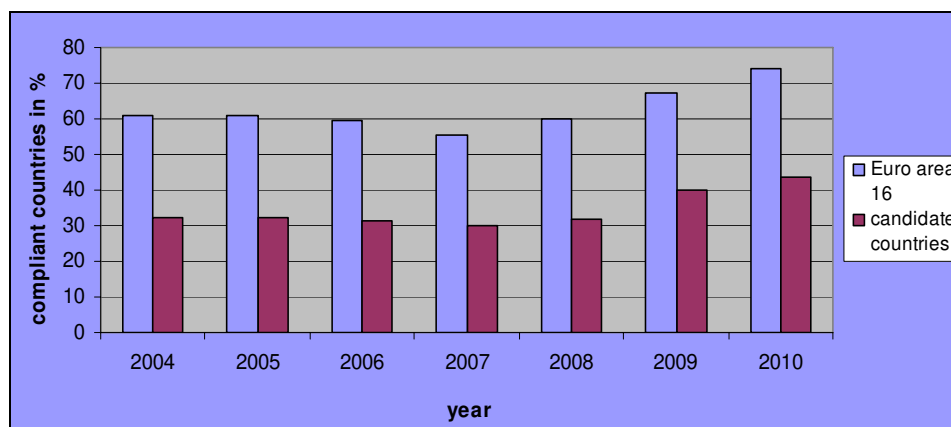
mostly export to the Euro-area. (For example 75-80% of Hungary's export goes to the EU.) The risk assessment of the given country improves with the EMU accession, since as a member state there is a low risk of government bankruptcy, in the opinion of the market performers. Funds become cheaper, stimulating investments. It is also favorable for budget financing. Inflation is decreasing in the long run because of the monetary politics based on common price stability, and the interest rates are becoming lower. All of these create a more favorable economic environment for the investors, which may result in the flow of functioning capital. Due to the single currency prices become easy to compare, which increase the competition. The Euro is a stable currency that provides protection against possible speculations. The Euro is the symbol of collective sovereignty practice and integration. (Taksán et al., 2010)

Of course the EMU have some disadvantages as well. One of the most well-known disadvantages is the loss of national sovereignty, because of the single monetary policy and controlled fiscal policy. The member states can not follow their own monetary policies, they can not devalue their national currency to encourage export, and finances position.

The European Central Bank is responsible for the single monetary policy, which is applied to every member states. Some countries have other economic accomplishment, therefore those economic policies which are prefer for this countries are not adequate for the others. The single monetary policy is not adequate for every country, because each country has a different economic cycle and the economic shocks come in different periods. With the EMU accession, the monetary and fiscal instruments of member states are considerably narrow, therefore the handling of shock is more difficult. (Losonczi, 2005; Taksán, 2010)

Figure 7

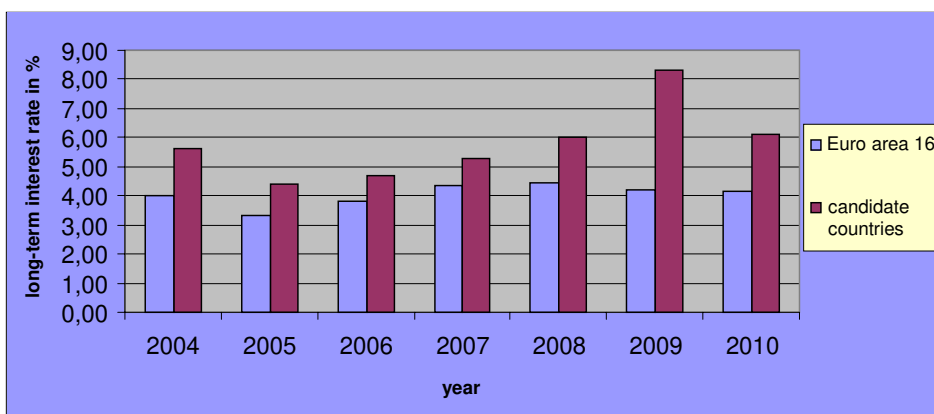
**Tendency of the government debt in the Euro area and in the candidate countries between 2004 and 2010**



Source: Based on Eurostat, 2011

**Figure 8**

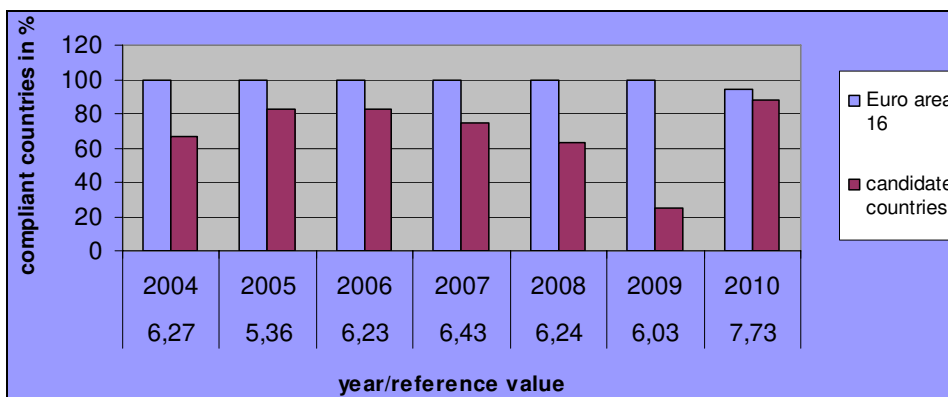
**Tendency of the long term interest rate between 2004 and 2010**



Source: Based on *Eurostat*, 2011

**Figure 9**

**Compliance of the long-term interest rate between 2004 and 2010**



Source: Based on *Eurostat*, 2011

Some countries did not join to the EMU. These are: Sweden, Denmark, and United Kingdom. Sweden and Denmark are very skeptical against the EMU. They are very proud of their own policy, society and economy.

In a referendum in 2000, the Danish voted against joining the EMU, and Sweden decided to stay outside of the Euro-zone. These countries are keeping their own sovereignty and thinking that they will lose this by joining to the EMU.

United Kingdom has an even more EMU skeptical population. They have got several reasons.

The first of these important reasons is the different business cycle. The UK's business cycle and the financial structure of her business are different from the

European countries. On the other hand the prestige of the national currency is very strong. The pound is a national symbol. The British are very proud of their nation and their own economy and they could not accept the loss of national sovereignty.

At the same time the United Kingdom has got a stronger and more competitive economy, than some member states, and they suppose that the accession will not result economic advantages for their country. There are many investors in the United Kingdom because low tax rates and ideal economic environment. The public services, infrastructure, and the pension system of the UK are not so developed, therefore the government should invest in this sectors, which would be restrict by the convergence criteria. So British people believe that their economy is ideal and they could not make benefits from the EMU joining. (Cini, 2006; Losonczi, 2005)

## **CONCLUSIONS**

It can be concluded, that in the EMU the interest rates did not significantly increase during the crisis, contrary to the decaying finances position, showing market trust in the stability of the area. The single currency prevented the deepening of the crisis. But there is a danger that the capital flow to the less-developed countries leads to an unsustainably high debt, endangering the Monetary Union. The crisis showed the dangers of the free capital flow as well.

Considering all of the above, the member states must put a great emphasis on obtaining a balanced and sustainable fiscal position. Differences in the finances positions prevent to similar fluctuation of business cycles, therefore making it hard to continue single monetary politics.

As regards Hungary, among the candidate countries we have the highest government debt (80.2% in 2010). The inflation rate of Hungary compare with the candidate countries is higher, but not the highest. The Long term interest rate was higher only in two countries, than in Hungary in 2010 (Latvia and Romania). On my opinion a first step for Hungary is to reduce the government debt with the reformation of the government finances structure (e.g. pension system, tax policy). If we could reduce the debt, the market trust will improve, which could be see in the country risk assessment, the interest rate as well.

It is very important that the inflation aim of the monetary policy infiltrate in the market expectancy as well. The accession date was postponed several times, which could be dangerous because it would cause the loss authenticity of economy policy. We should obtain the market trust to improve our economy indicators, and position.

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## THE EFFECTS OF FINANCIAL INSTRUMENTS IN CONDITIONS OF CRISIS IN SERBIA

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### **ABSTRACT**

*This paper discusses the influence of the application of financial instruments in the Republic of Serbia. The global economic crisis, the effects of which will last for a long time, has left a significant impression on our country and its development. Our government has taken as its objective, and is developing guidelines for, a more efficient development process. Thus our interest is in this subject. The work is oriented more like an essay, but includes much data from scientific research. The aim of this project is to create strategic plans to raise confidence in financial instruments. This should begin to move the country out of the current state of crisis. A financial instrument is a contractual relationship that creates a right to the funds of counterparty and a financial liability for the other party or where there is an increase in capital of the other. Instruments that appear in our paper: shares (shares, stock), bonds (bonds and notes), and warrants (warrants). This paper consists of four chapters and concluding remarks. The first part presents the genesis of financial instruments, while the second chapter explains their types and functions. The third part covers strategic planning, while the fourth part is devoted to the current state of the economy in the Republic of Serbia. The concluding discussion summarizes the proposed strategic development goals and outlines possibilities for overcoming the crisis.*

Keywords: economic crisis, financial instruments, monetary reform

### **INTRODUCTION**

The global economic crisis has caused a global recession that threatens the economy of all countries, both in the EU and worldwide, so it is inevitable that leave visible traces in our country. It is largely forced the country reacts to in order to ensure the stability of the entire financial system. In the centre of all events are the financial markets, which in many ways trying to follow the new changes and to prevent further deterioration. Therefore, the European Union is committed to specific economic recovery plans to reduce the impacts of the crisis. Cornerstone on which the EU is in their plans is based European Investment Bank (EIB) as one of the major financial institutions, which is expected to approve loans to developing countries for further development and helps quicker economic recovery.

Financial markets are definitely in the centre of all happenings and various alternatives are struggling to cope with changes caused by increasing turbulence, and to avoid further declines. The instability of financial markets is actually the root of all problems in the economy. To an economy and unfolds need is a reliable and efficient financial sector. The first step is preventing further deterioration of the stability of the banking system. Serbia has to work for stability of the financial

sector, but also to create conditions for rapid recovery from the crisis. It is essential that banks take over their role in providing liquidity and the necessary investment. Financial crisis affects mostly the research, development and innovation of small and medium enterprises are the key areas of each country. It is necessary to mitigate the consequences of the recession and lay solid foundation for quality economic recovery in order to create a stable economic system.

The aim of this paper is a critical analysis of public administration that its inability to inhibit the development of the crisis in particular it greatly affects the politicization of the public sector.

## **CHARACTERISTICS OF FINANCIAL INSTRUMENTS**

The bases of any financial system are financial markets, which are determined by financial instruments and financial institutions. Financial instruments represent material financial transactions. The creation of different forms of payment and credit instruments affect the development of credit systems and the development of modern commodity production. These instruments reflect the different relationships they enable the transfer of risk from one to the other economic subject.

The importance of certain financial instruments is a reflection of greater or less development of the financial markets. Developed countries have a wide range of different types of securities. On the other hand, in countries with underdeveloped market infrastructure, the role of currency is the dominant, the fluidity of the financial market is smaller, which certainly undermines the liquidity of the national economy.

The basic characteristics of financial instruments are as follows:

- *Do not have the money form* - financial instruments used as a medium of exchange or executions of transactions are called money. Other financial instruments may be at low transaction costs to transform into liquid assets.
- *Reversibility* - the cost of investing in financial instruments and his return to liquid form. Maturity - the time period in which the planned payment instruments or period when the owner has the right to liquidate it.
- *Divisibility and denomination* - the minimum size for which the financial instrument may be liquid and exchangeable for cash.
- *Currency* - some issuers to reduce the risk of exchange rate movements broadcast dual currency bonds. Thus, the interest income received in one currency and equity securities at maturity in another currency.
- *Convertibility* - a very important feature of the securities and can be performed within one and the same securities or from one type to another paper.
- *Liquidity* - the cost and time they are exposed to the owners of the securities if they want to be in a shorter period of time selling and turn into liquid assets
- *Complexity* - refers to the complexity of financial instruments which contain two or more simple instruments.
- *Cash flow* - is a fundamental characteristic of the securities and it clearly determines its value.
- *Tax treatment* - tax status of any securities. Tax rates may vary depending on where the instrument is working.

## **TYPES OF FINANCIAL INSTRUMENTS**

On the financial market there are a large number of financial instruments. The most important criteria for their division are:

- According to the time structure of the financial instruments are classified as short, medium and long term.
- According to the place of broadcasting distinguish domestic and foreign securities.
- According to the method of forming the instruments share them on the primary and derivative securities known as financial derivatives.

## **LONG-TERM FINANCIAL INSTRUMENTS**

Capital market for the constitution of a long-term financial assets, or, if analyzed as a market for financial instruments - emissions trading and long-term financial instruments (long-term securities). It is the financial assets resulting from the accumulation of meeting the needs of production, and long-term consumption of non-manufacturing sector.

After meeting these needs contributes to the formation of social capital, long-term financial instruments can be considered and the market instruments of value. There are three basic types of long-term securities:

Action (engl. Shares, Stock), which appear in the form of ordinary (engl. Ordinary Shares) and preferred (engl. Preferred Shares), presented a certificate of investment in capital (understood as an expression of property rights of investors funds).

Bonds (engl. Bonds, Notes) or debentures, which are evidence of the credit than investors (owners) and users of funds, and Hybrid instruments - Warrants, which include features of stocks and bonds. Actions reflect the ownership of the property and are the financial instrument for raising the capital to finance business of the issuer.

Action is the securities that the owner (investor) the right to part of the profit (profit) companies - dividend, the right to run a business and dispose of property companies in the event of its liquidation. Issued in order to form or increase in capital stock company. Shares have a nominal value (engl. Nominal Value, Par Value, Face Value) that is freely determined by the foundation of society and is inscribed on each share. The nominal value is usually low because there is no other economic function except to serve as an accounting category, or to express the owner's proportionate share - shareholders' equity. In some economies action cannot be aired for less than par. The law allows, also, that the actions are not explicitly defined nominal value which, in this case, to calculate the division of capital in the total number of issued shares. On the secondary market, the share price is determined according to supply and demand.

Action in principle last indefinitely and is linked to the fate of the company as an active business entity ("going concern"). It allows the investor to participate in the arrangement of company profits, but also to bear the risk of the operations of the amount of invested capital and the nominal value of shares owned.

Actions occur in the form of ordinary or preference shares. Ordinary shares (Ordinary Shares engl.) give investors the right to operate the enterprise or participation in entrepreneurial democracy - the right to vote, election management, filing resolutions, and other rights. There are ordinary shares without voting rights.

Preference (priority) action (engl. Preferred or Preference Shares) only allow the owner the right to dividend and to the pre-determined format - as a percentage amount of the nominal value of shares, or fixed amount per share. If the company does not declare (announce to pay) a dividend at the end of the year, entitled to priority dividends can be transferred to the following year. In this case, it is a cumulative - preferred share (engl. Cumulative Preference Share).

Priority actions may include the right to a fixed return and the right to run a business and in this case is called participatory preferred stock (engl. Participating Preference Shares).

Convertible preferred shares (engl. Convertible Preference Share) allows an investor to replace it for a predetermined number of shares at the time designated by him. Company is allowed to determine the minimum market price of common shares that must be realized, that could use this right of conversion.

A bond is a security that the issuer agrees to pay the bearer a certain amount of days specified in the bond with interest or otherwise, if so provided. \* Represents 3) a very important form of collection of money resources in the contemporary economic relations, in order to finance the expanded reproduction. Since the issuance of bonds requires a high level of expertise and well-organized technology programs, banking organizations often issue bonds for others and for their account.

There are three ways to bond: a bond or enter subscription, steady sales of bonds and free sale of bonds.

The bonds may be fixed or variable interest rate. In practice, it is considered that the interest payments if they are safe for industrial enterprises covered by triple-profit and for electric power companies is enough to cover twice.

## **Bonds**

Bonds, by duration of the credit relationship, are short, medium and long term. According to the entity that issued them bonds are divided on the bonds issued by the public sector, and bonds issued by the private sector.

From the standpoint of insurance claims, bonds are classified into secured and unsecured bonds. According to the method of participation in profit enterprises are divided into bonds with a financial interest, income bonds and Participating bonds. According to the time of purchase are divided on the bonds after the deadline and bonds before maturity. According to the method of their amortization classified at the one-time bond maturity and bond with multiple (serial) maturity.

In our law it is stressed that the issuance of bonds to be successful, and that means that the deadline for payment of bonds paid at least 90% of the total amount that is indicated in the declaration for registration of bonds.

The company may issue a special long-term financial instrument, which give the holder the right to turn them into action. These long-term securities are known as the warranty. Warranty is a long term option that enables the investor to buy a



certain number of ordinary shares at a specified price at any time before the stipulated period (*JC Ritchie*, 1987, 461. p.). Warrant is usually part of the preference shares or bonds, and is broadcast to the financial instruments in order to reduce costs and stimulate sales programs. But may also have an independent existence of the market (number of warrants listed on the stock exchange). Their market price is lower than the prices of stocks in which they can be converted, and that price is the difference between the price at which shares can be bought in the market and the price at which it may acquire with using warrants. If the share price does not rise, before the expiry of the warrant, the warrant price can be reduced to 0.

## **STRATEGIC PLANNING**

European Investment Bank is the oldest European bank established in 1958. The Treaty of Rome and a limited company member of the European Union. EIB should respond to the attack that has set the financial crisis by increasing loans to those countries and sectors that need help the most.

One such loan agreement was signed between the Ministry of Finance of the Republic of Serbia and the EIB in 2009. Value per contract is 50 million and the funds are earmarked for projects that were slated National Investment Plan. The contract concerned the following areas: infrastructure, education, public administration and preservation of cultural and historical heritage.

However, it is not enough to rely only on loans, especially insolvency of our country, it is necessary to make radical changes within the monetary system.

The state has always played an important role in implementing structural changes and to assist the private sector. But in developing countries, governments often adopt the wrong decision Serbia is not effective because the state is evident, a number of weaknesses in public companies.

It is necessary to reduce public spending and employment in the public sector, increase efficiency by reducing the number of key functions, increase the competence and independence of the civil administration. Must be implemented depoliticisation of public administration and public sector building and strengthening anti-corruption institutions and the introduction of external audits for all legal entities and entrepreneurs, which so far has been the practice.

Serbia needs to implement monetary reform should be accompanied by a restrictive monetary politics. This would lead to a stable currency, and achieving price stability. Are necessary and structural measures in the financial sector, such as restructuring and privatization of remaining public enterprises, the rapid development of capital market instruments and financial market liberalization and strengthening the independence of the NBS. Higher CB independence results in lower inflation and stable growth of GDP. The public needs to be regularly informed about the movement of monetary aggregates and monetary policy objectives, because with the right to expect that the elected government to stay long enough to be able to implement the plans.

Also, monetary reform follows unify the exchange rate and the elimination of the parallel exchange rate, introduction of internal and external convertibility and

developing foreign markets. Just like that on the Serbian market may appear different financial instruments in which the foreign investors and local businessmen, have more confidence. This sequence of items may result starting point momentum weakened economy and greater investment in the development of SMEs.

## CONCLUSIONS

One of the most important steps for the recovery of the economic system of Serbia is to agree on signing a contract with the EIB. Time that our country has managed to mitigate the consequences of the global financial crisis and to attract needed foreign investment. Investing in small and medium companies of capital is of paramount importance for the economic system and the only way to ensure the road to sustainable development of our country.

EIB to boost lending, especially to those sectors and regions most wounded to some extent, responded to the attack that has set global economics crisis. The crisis itself calls for a reaction to ensure stability of the financial system.

Through joint cooperation with the EIB Serbia and other countries would be through cooperation and joint projects have managed not only to mitigate the consequences of the global financial crisis but also to attract much needed investment, which is of great importance for the economic system and the road to sustainable development.

It is also necessary to implement the Serbian monetary reform which should be followed very restrictive monetary politics. It is necessary to create a stable currency and the achievement of price stability. Monetary reform follows unify the exchange rate and the elimination of the parallel exchange rate, the introduction of convertibility of internal and external development and foreign exchange markets. Just like that on the Serbian market may appear different financial instruments in which the foreign investors and local businessmen, have more confidence, which should result in greater investment and development of SMEs.

This path should move to other countries that have a similar situation as Serbian.

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## THE IMPLEMENTATION OF VALUE STREAM MANAGEMENT IN A COMPANY'S STRATEGIC AND OPERATIONAL MANAGEMENT

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### **ABSTRACT**

*Many companies risk millions of dollars on technical developments and improvements without the guarantee of these investments' sustainability. This means that development of strategic management has failed somewhere. Value Stream Management (VSM), implementing Value Stream Costing (VSC) is proving to be an effective strategic management philosophy, leadership structure, and set of tools to foster companies' strategic sustainability. This article will discuss the whole practical approach to develop an eight-step strategic Value Stream Management System. The true value of the system consists in identifying 26 different transactional wastes, many more than are identified by the traditional lean approach, which identifies 7 main lean wastes in transactional processes. Using Value Stream Mapping in production and in the office can set up the full company operational strategy. The first step is the real current state. The next step is to analyze the data and the next major step is to setup the new Value Stream Analysis and Design (VSD) for all processes. This system can instantly react to the internal and external business environment changes. The system can eliminate the internal process's wastes and can increase the company's output and effectiveness. This leads to increased control of the drive of the company's Quality Cost and Delivery. VSM is a modern lean management approach as well as the next opportunity in strategic and operational development for companies and the accounting system.*

Keywords: VSC, VSM, KAIZEN, Management system, TPM, 5S, PDCA, Controlling

### **INTRODUCTION**

Right on the beginning there must be clarified the acronym VSM. In one hand the VSM stands for the operational tool VSM (Value Stream Mapping - tool) and on other hand stands for Value Stream Management (from now I refer as VSMM) as strategically tool and system for future process development and managing the processes. This includes innovation too. The VSMM is a global process planning by linking the lean initiatives through systematic data capture and analysis. In VSMM there are involved all the departments. The mapping purpose to provide optimum value to the end-customer through a complete value creation process with minimum waste in:

- Design (concept to customer)
- Build (order to delivery)
- Sustain (in-use through life cycle to service).

In VSM mapping are made by a cross-functional teams and latter on during the process evaluation will met all participants in the value stream. There are grouped

the products in VS product families and depicted the actual state. The actual state data are recorded visually to a VSM storyboard where the management (and everyone) can see the “big picture”. All the steps of production with the VA (Value added), BNVA (Business Non Value Added) Value added (VA) “Value is added only when our action or operation contributes to transform the materials into the product that the customer is willing to pay for.” (Mike Rother pg.31.) Continuously monitoring the storyboard gives immediately image over the bottlenecks if they occur. This is the basis for future planning and based on priorities are started the waste eliminations in all departments. It is important to mention that VSM's are an important part identifying the production processes, however it is not enough to make mapping in isolation. Without understanding the lean principles and company strategy in all will bring no closer the company to minimize the wastes.

## **DEVELOPMENT OF MANAGEMENT SYSTEMS**

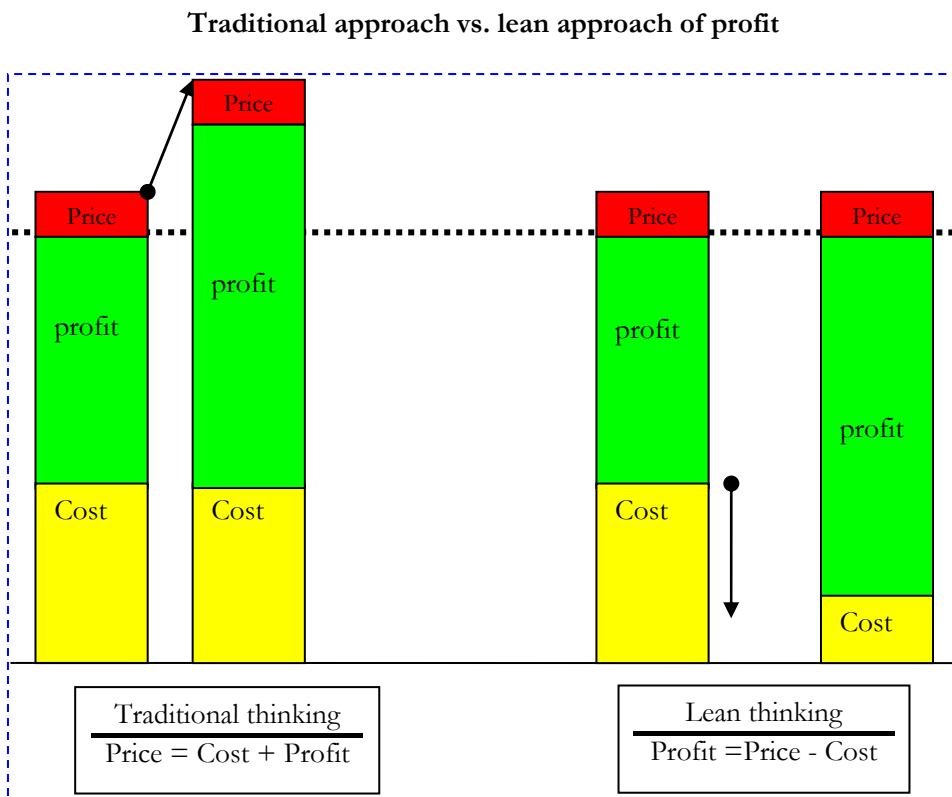
To maintain competitiveness the companies and developing productivity have mainly two approaches, by developing with innovations (or hiring new stuff, knowledge) or by continuous improvement (KAIZEN) and as management tools can be several. This in practice means developing the existing or combining with innovations too and one does not exclude each other. The concurring companies differ in their vision and mission statement by serving the end customer. Companies are using different tool and solution given by the several methodologies to keep in hand the business. These are like strategic management or project management, industrial reengineering, Six Sigma, ISO 9000/QS-9000 DOE/Shainin, Integrated product development enterprise software, Balanced Scorecard (BSC) or restructuring the whole company itself. The transformations unfortunately many cases do not give the great expected productivity and financial results because takes too long time, to people to change their mindset is very hard without understanding their role or the company philosophy (or there are not succeeding). Other reason is that project key persons leave to another company or the planned deadlines are overdue (in 80% of cases of project management). The main problem is also that company is hierarchically too much structured the management is giving commands to lower layers but from down to top do not reach the information. Also companies starts on their own local improvements and do not consider widely the flow of material and information and their interactions. The VSM is a tool of a new business paradigm called lean manufacturing. In these sense there are in this concept two kind of companies those which are practice lean and those which not. Lean is not a gift it must be done day by day and the main difference between these companies is that “somehow” these are more competitive. Competitive not only in sense of serving any end customers need in time but also by the company net realized profit. The secret stays in that they have less waste in their all processes less cost. The cost reduction principle.

## **THE VSM PARADIGM**

This comes with the time because of market changed and the customer needs were changed, customer wants price reduction with less lead times and higher quality.

This is known as “golden triangle”. The lean threats this as the values that the customer can sense in the product or service (Quality Cost Delivery)(Figure 1).

Figure 1



Source: *Tapping et al.*, 2002

The business vision and philosophy is strong related with mission and this defines how all the administrative and production processes are. How people are thinking is the quality of the product. "Good thinking, good product" (Toyota philosophy). Eliminating waste is the basic concept of the workers and realizing in day-by-day results the competitive edge. In everyday production altogether is called company culture. In less good practices in many cases leads companies with short term vision for just surviving, or just getting out the most possible as profit in short term. These do not have proper long term vision and mission as well they do not know how their real processes are, they do not have structural problem solving techniques. This can lead they can not keep their activity for long and they remain unknown for the public or do not have good image and are extracted from the market.

Even it is about a finish good production company or a servicing company of course their goal is to realize and maximize the profit. This is realized by transforming within different processes the material or information to a higher

quality output and by the structure more complex as initially the raw materials. Generally is matter of productivity and quality. Most of the traditional business processes operations are 90% waste and just 10% (or less) are Value-Added work. (Liker, 2003). The Wastes Do NOT add any value to the product or service just consume energy, effort and rise production or service costs.

### **WHERE TO IMPROVE? WHERE ARE OPPORTUNITIES TO RAISE PRODUCTIVITY?**

“Starting without a well based strategy is like sitting in a ship with no rudder.”

The Value Stream Mapping (VSM) is a technical quantitative tool that examines the physical system, processes and interconnections. VSM show the process and its wastes in a graphic representation it is easier to understand by everyone and many of those issues are immediately resolved. It contains all material and information processes and wastes too. VSM is a special type of flow chart, because deal with the time, inventory, material and information and interactions in between these main elements.

Value stream mapping is a lean manufacturing technique used to fully analyze and design the flow of materials and information required to bring a product or service to a consumable state. The daily pace does not give for a company the vision and the time. Value Stream Mapping is an analytical strategy to assess the value we really are adding in the process from the perspective of the customer. First always it has to be considered the customer need. Value-added (VA) defined by lean manufacturing (lean thinking\*) is that the customer is willing to pay for. Waste is all other that than VA which consumer energy or effort and don't realize value. Therefore generates direct and indirect cost not only in the company but in all related external processes too.

The process thinking has long history. Henry Ford developed the flow production. TOYOTA developed for many products and implemented as strategically tool of TPS (**T**oyota **P**roduction **S**ystem) (Figure 2).

The owner of Toyota raised the simple question: I would like to know what does happen in between the customer make an order and the time when the paid money for product arrive to our bank account? The Toyota started with the Value Stream Mapping and during the time many companies (ex. GM, HP, Bombardier, SAMSUNG, Flextronics, TDK-EPCOS, Knorr-Bremse, Jabil, GE, Continental, Philips, DENSO, Coloplast, Festo, Honeywell, Nokia, Bosch, Alcoa, Bridgestone ) learned and developed continuously. Few of companies in the World realized really commitment to lean.

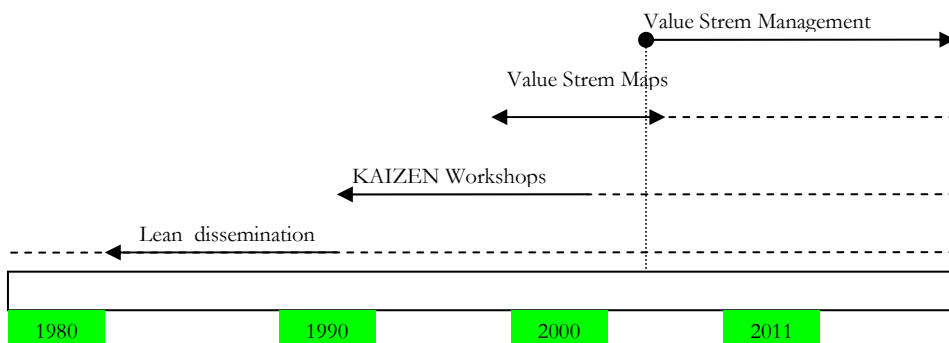
### **THE SEVEN DEADLY WASTES**

In this section will be answered that how to close the gap and follow the Toyota examples.

The true value of the VSM method consist not only in founding the real value-adding places in fact by identifying of the twenty eight (28) different type of transactional wastes getting above the traditional lean approach witch identifies seven (7) main lean wastes in the transactional processes (Table 1).

Figure 2

The brief time outline from lean to Value Stream Mapping and Value Stream Management



Source: *Tapping at al.*, 2002

Table 1

The production and administrative wastes

<p><b>Main seven waste</b></p> <ol style="list-style-type: none"> <li>1. Overproduction</li> <li>2. Waiting</li> <li>3. Transport</li> <li>4. Over processing</li> <li>5. Inventory</li> <li>6. Motion and movement</li> <li>7. Defects</li> </ol>	<p><b>Other process waste</b></p> <ol style="list-style-type: none"> <li>1. Scrap</li> <li>2. Rework</li> <li>3. Workarounds</li> <li>4. Inspecting checking and double checking</li> <li>5. Need for approvals</li> <li>6. Variable flow in process</li> <li>7. Incomplete work</li> </ol>
<p><b>Information waste</b></p> <ol style="list-style-type: none"> <li>1. Redundant input and output of data</li> <li>2. Incompatible information systems (interfaces)</li> <li>3. Manual checking of data that has been entered electronically</li> <li>4. Data dead ends(data that is input but never used)</li> <li>5. Reentering data</li> <li>6. Converting Formats</li> <li>7. Unnecessary data</li> <li>8. Unavailable, unknown or missing information</li> <li>9. Incorrect data</li> <li>10. Data safety issues (lost or incorrect data)</li> <li>11. Unclear or incorrect data definitions data discrepancies</li> </ol>	<p><b>Types of people waste</b></p> <ol style="list-style-type: none"> <li>1. Unclear role(responsibility, authority, ad accountability)</li> <li>2. Lack of training</li> <li>3. work or task interruptions</li> <li>4. Multitasking</li> <li>5. Underutilization of talent</li> <li>6. Recruitment errors</li> <li>7. Lack of strategic focus</li> </ol>
<p><b>Physical environment waste</b></p> <ol style="list-style-type: none"> <li>1. Safety</li> <li>2. Movement</li> </ol>	<p><b>The Biggest Waste</b> Unrecognizing the WASTE!</p>



## THE 3MU WASTES

The MURA, MURI, MUDA (3Mu) are another three special waste defined by Toyota and which affect all the elements of productivity specially 6ME (**M**an **M**aterial, **M**achine, **M**ethod, **M**easurement, **M**anagement, **E**nvironment)

**Muri:** Overburdening equipment or operators by requiring them to run at a higher or harder pace with more force and effort for a longer period of time than equipment designs and appropriate workforce management allow.

**Mura:** Unevenness in an **operation**; for example, a gyrating schedule not caused by end-consumer demand but rather by the production system, or an uneven work pace in an operation causing operators to hurry and then wait. Unevenness often can be eliminated by managers through level scheduling and careful attention to the pace of work.

**Muda:** Any activity that consumes resources without creating value for the customer. Within this general **category** it is useful to distinguish between type one muda, consisting of activities that cannot be eliminated immediately, and type two muda, consisting of activities that can be eliminated quickly through kaizen. An example of type one muda is a rework operation after a paintbooth, which is required to obtain a finish acceptable to the customer from a paint process that is not highly capable. Because a completely capable paint process for fine finishes has eluded manufacturers for decades, it is not likely that this type of muda can be eliminated quickly. An example of type two muda is multiple movements of products and inventories between steps in a fabrication and assembly process. These steps can be quickly eliminated in a kaizen workshop by moving production equipment and operators into a smoothly flowing cell (*Figure 3*).

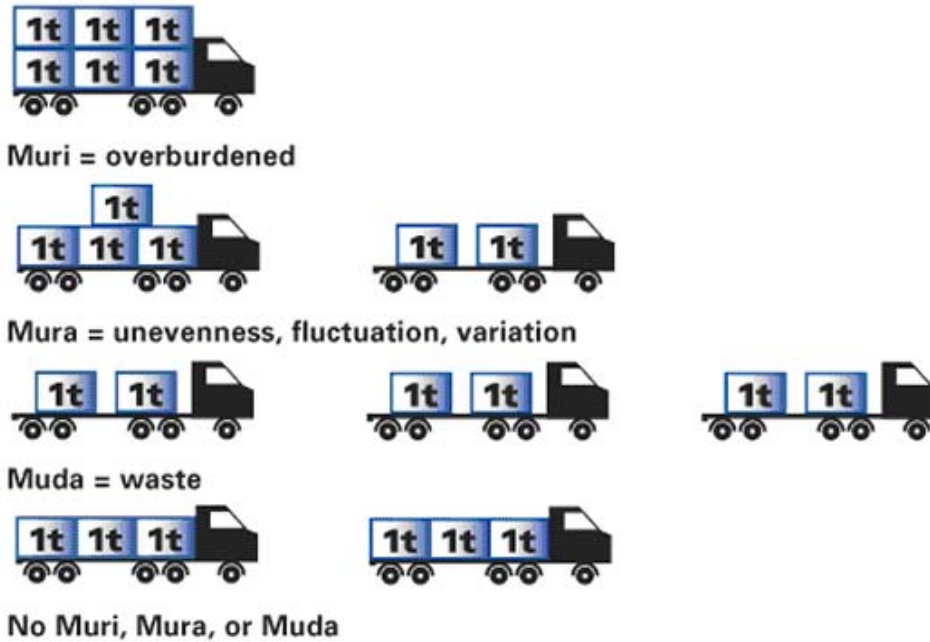
Eliminating waste means increasing value-added during lead-time and workday too. But first it must be considered the 3Mu because they are correlated like shown in *Figure 4*.

Means not much work, and not harder and not quicker. With these actions is shifted the ration between waste and VA so we will serve the customer quicker in better quality and with less cost of production (*Figure 5*).

Many times the management does not recognize that the biggest waste is not to recognize the waste. To start to change the business and manufacturing paradigm first of all means to change the mindset. Management must decide and participate 100%. Lean manufacturing itself is not a miracle tool can be done well or can be done wrong. The Toyota succeeded to see clear what is happening in the factory, by setting up the necessary tools to see the real manufacturing and administrative processes. It is called "The big picture".

Figure 3

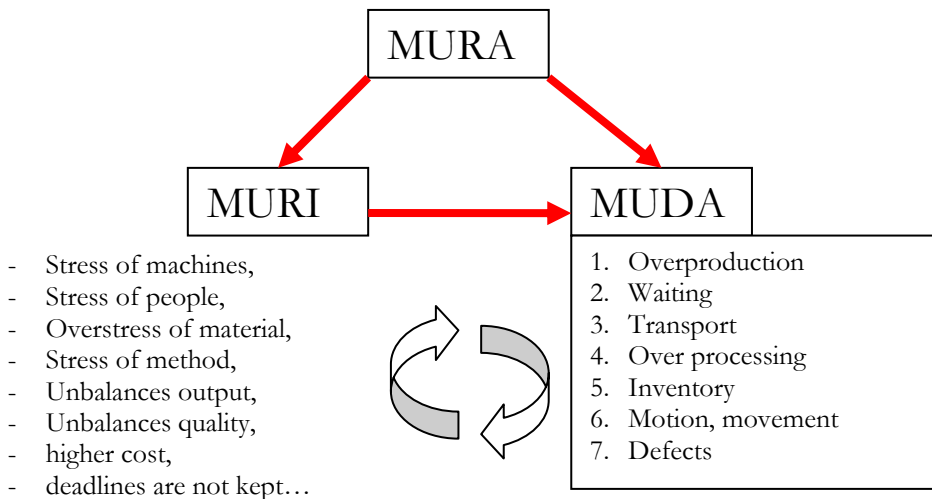
The 3Mu as a special type of waste defined by Toyota



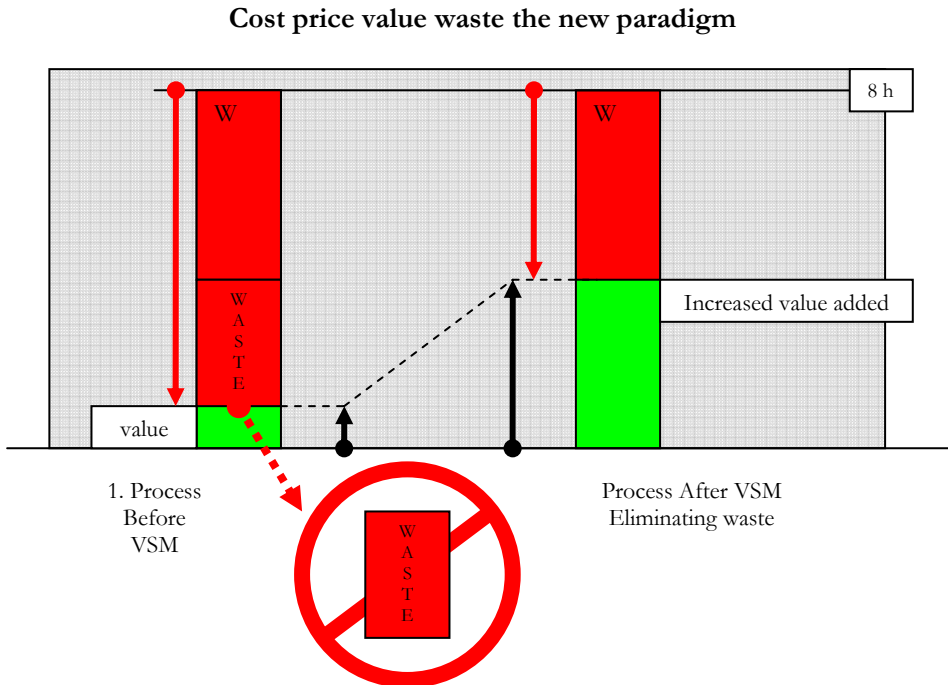
Source: [www.lean.org](http://www.lean.org)

Figure 4

The relation between 3 MU



**Figure 5**



### **THE FIVE LEAN PRINCIPLES IS THE BACKBONE OF VSM**

The very first step in a company starts with the commitment to the lean. This means full understanding the principles the customer demand thoroughly and depicting the actual state and continuously communicate. Top management must also believe and ensure the power for all employees. VSM is the interface to communicate with the employees too. VSM is an improvement strategy that links the needs of top management and the needs of the operations group. In the practical experience the western type managing companies or those who do not have developed strategically company culture accept very hard the Asian type philosophy like Hoshin management which is connecting three or more PDCA circles together. The VSM tool used as strategically and operational management tool is much closer. In fact the essence is the same. Is a quick adaptive management system which implements the modern quality and productivity tools (Visual management, TPM, Poka-yoke, Chaku-Chaku, LCA) in daily operations and strategy. To set up a VSM management every company must decide and build is own quality house and leads to better understanding between the members of the management. The VS Champions are selected from in-house, they are learned and trained to lean tools within a pilot project. Lather the achievement and the standards of the model area are generalized. This is one of the main tasks of the champion and to generalize the knowledge and to sustain and develop the whole VSM system. The basic principles are the five lean principles.

First is to understand fully the five lean principles:

1. Understand and define the value from the end customer side (Value).
2. Understand the value stream. Depicted the actual state current VSM (Value Stream).
3. Ensure the flow. Develop your processes and the whole organization to ensure the smooth and continuous flow of information and material (Flow)
4. Introduce pull system. (Pull)
5. Improve continuously your organization through perfection (Perfection)

Sounds nice and those companies who are devoted and think seriously can achieve results which we are going to show in a case study besides explaining the practical approach of building VSM system. Many companies make the “failure” and tend to build up their organizations by department and functions (Mike Rotter pg. 17.). So in this way departments are responsible for themselves and manager is responsible for “his” department. They will operate to their point of view regarding costly and productivity fulfilling the quarterly or yearly plans or not and this means past things that already happened. The correction of the mistakes and errors is too late. There is no customer vision on the middle and lower operation levels. No one is responsible for a product family the whole value stream perspective. This means that is very-very rare to find a person in a factory to know deeply the material and information flow.

Based on the Value Stream Mapping in production and office can be set up the full company operation and strategy where the BNVA is minimal. Lean Manufacturing through a VSM – Value Stream Map Analysis can help discover these wastes of resources and bring the process to a higher performance in just a few days or weeks depending on the company and process complexity. This system focus on flow and processes together building in processes the quality. Introducing in company the VSM as tool and strategy and operation in management VSm brings in the flexibility to handle the customer needs, to handle structured the problems playing “catch-ball” from bottom to top and inverse. People at all levels as administrative and production are involved in their daily operation in personal KAIZEN, team KAIEZN, Management KAIZEN. This means that information flows in all direction (top-down, bottom-up) and all problems are handled as short is possible. The VSMM support the organization to become a real lean enterprise (Don, pg 8.) providing structure to implement functions based on team thinking. The structure as a model runs as storyboards and any transformation or operation or modification is made consciously by any member of the company. The visual management encompasses the strengths of proven problem solving methods, like:

- Clear and concise communications between management and workers (storyboard)
- Proven tools are used for implementation
- Team recognition and ownership are includes from the beginning to end
- Management review and reporting are incorporated
- It provides a good form if visual communication (implementing IT technologies too)
- Changes and updates can be reflected as there occur
- Link together people
- Ensure the lean is sustained
- Allows everyone to understand and continuous improve his or her understanding of lean concept

- Makes possible controlled process flows on the floor
- Generates an actual lean design and also an implementation plan
- Require lean coordinator and VSM managers to keep process smoothly
- VSM managers are fully responsible to the whole VSM from head to tail

What does not mean does not involve:

- Just forming Kaizen teams and waiting for results
- Just mapping to show the material and information flow
- Just forming self-directed work waiting for results
- Appointing VSM coordinators to make them responsible for improvements

The model of VSMM in Hungary is implemented by Hungarian experts as in national and multinational companies. This proves that VSMM is not related by culture or any pre-existing company culture. Of course it is much more smooth where do exists a positive acceptance and the new things are not strange. The implementation is successful and it is shown in a case study. The VSMM is not about telling to people how to do their jobs more effectively it is about a systematic approach that empowers people to plan what, how, when there are going to implement their improvements that make easier to meet customer demand.

## **STEPS OF IMPLEMENTING AND RUNNING VALUE STREAM MANAGEMENT**

The implementation of project usually depends on the complexity of the product or the numbers of VS-s. First it is recommended to execute on a simple VS, where the main steps are considered to be are no more then seven (VA). In our case study the VSMM on the model area was introduced within 20 days and results could objectively measure on the next day after implementing the VSD in the new layout on the shop-floor. After the first action productivity increased 10.5. The lead-time was reduced from the 1600 minutes (and variable) to 150-153 minutes. After following up the project after one year with the KAIZEN implementations increased twenty-seven times as the initial stage.

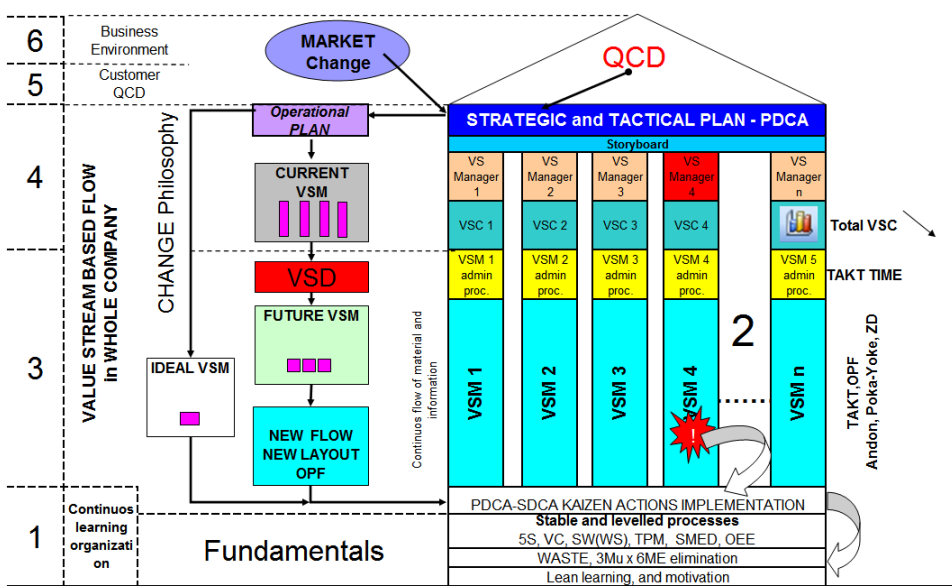
In the fundamental stage (INPLEMENTING VALUE STREAM MANAGEMENT–FUNDAMENTALS) ensure for the continuous learning organization to have stable production by revising the vision, strategy, paradigms, actions, behavior, knowledge if any problem occur. It was possible to do with VSM and lean training. It was trained to lean basics all the members of the project including management and shop-floor workers together.

All people must deeply understand and learn lean. They participated in a production where eliminating waste is basic productivity concept and requirement. (WASTE, 3Mu elimination)

They understood that the problems are their problems and the possibilities too. It is a must to understand the principles to cooperate for success. To create a continuous flow it is necessary to identify the product families and VSM and bring to surface the problems. One product family was chosen. Initially the engineering and all the management known that their products forms eleven product families. Lather by VSM analysis was proven that all the products can fit into four product families (*Figure 2*). This eliminates a lot of bottlenecks which will be presented (*Figure 6*).

Figure 6

The model of VSMM system



The view of the management and the perspective of the workers are different. To approach this two views was formed the storyboards which shows the material and information flow design. The data are collected partly manually and by management information system. It was promoted in this way the catch-ball. This promotes two-way communications and feedback. Both workers and management can initiate strategically and operational changes that support strategy and QCD. Motivation of people is a must. It is the management role to set up a well operating motivation system. As the shop floor workers and middle management has realized that the problems means possibilities. Also understand that quality can be realized only with stable basic processes. There are set and run stable balanced processes by implementing methods like 5S (Seiri, seiton, seiso, siketsu, shitsuke - the ultimate shop floor environment in production and office), Vc (visual control) ensure anyone to see production related events positive or negative (+ or -) and if any abnormality occur. By TPM (Total Productive Maintenance) and SMED-Single Minute Exchange of Die ensure the equipment to work with maximum efficiency less waste increasing OEE (Overall Equipment Efficiency). The TPM is set to stage three TPM III where are set the standards of cleaning, checking-controlling and lubrication. The OEE of automatic machines were increased with 40%. With the SMED actions it was possible to reduce the changeover from 66 minutes to 42 minutes after the first run. This was a 55.9 Mill HUF saving in one year. The reduction continued and within the one year reached to 30 minutes reduction. In the foundation happened the KAIZEN (The continuous improvement) and it is done and can have real effect. The ECRS (Eliminate, Combine, Rearrange and Simplify) four Kaizen principles are daily used

for reducing waste and improving processes. By applying also the Deming cycle to standardization process the SDCA-PDCA (Standardize, Do, Check, Act - Plan, Do, Check, Act) is ensured the development of all standard processes defined in Standard Work (SW) procedures and all Work Standards (WS) for all work steps where value added was done.

In production (2) figure \* which includes of course the basics too are set up the VS. Each VS is managed by one Value stream manager. This make possible to ensure and work in reality the flow concept and is ensured. There were defined the four VS. PRODUCTION (2) Is grouped in product families and organized and running conform one piece flow (OPF) the best flow conform variable TAKT TIME value streams (VSM1-VSM n) in production and office (VSM 1 admin proc.) too. These are managed by Value stream managers, who are full responsible for head-to-end value stream activity result and cost (VSC). In this way in any moment of production can be exactly estimated the cost of production and cost of MUDA. The production steps in VS are well designed by the 3.-4 elements. These are the made or modified or revised the current VSM conform strategy or operational change. Change induced by customer or market environment. After deep calculations and analysis are made the new Value stream is set up and the VSD (Value Stream design) the new layout and actions are designed. The production processes are strong redesigned with the administrative processes. This results the new future VSM's or Ideal VSM. The Ideal VSM is designed, if needed a totally new concept for production implementing innovation. Both generate strong Kaizen actions. The next step is followed by introduction immediately and other PDCA and/or KAIZEN actions so running the changes. Even on the normal operational all data are collected (online). In this way the production deviations, problems, bottlenecks can be immediately detected and (KAIZEN) or corrective action can be started (CAPD-PDCA). The PDCA has strong regulation regarding the time. This regulation must be set up by management from the very beginning. These VSM production data (Qty, Q) are shown on the VSM Storyboard and top management also can see the status and modify the strategy the operation or the tactics. The value stream cost is known so the total VSc is also can be followed online. Initially where is no possible to collect data by computer is reported as the management orders by 2-4-6-8 hours. Also the reaction is much more prompt to external factors as QCD change or market. There are used ZD (Zero Defect) tools to control quality like Andon systems and installing Poka-yoke devices many time invented by operators. Of course this takes time and it must be accepted also by maintenance stuff too. The role of maintenance also changes with VSMM introduction leading through PM (planned maintenance direction) and their efficiency is calculated conform OEE. The VSMM is fully "cross-functional" system involving with the possible best competence and attitude of work all the members who understand the lean concept.

## **THE CHANGE PHILOSOPHY**

If any change is planned in production in very early design faze is immediately known the positive or negative effect. The change may come from of business environment or

customer Discipline is a strong criteria at all levels and modifications can be done with common understanding only. Strategy can be initiated by anyone (top-down, bottom up.) which leads to better customer service. Starting from the strategy or tactics, there is set the Current State (a.) for material end information flow. By VSD (Value Stream Design) made the Future State (b.) or Ideal state(c) and is followed by the new layout change(d.) plans design and implementation action plans (Table 2) (Figure 7).

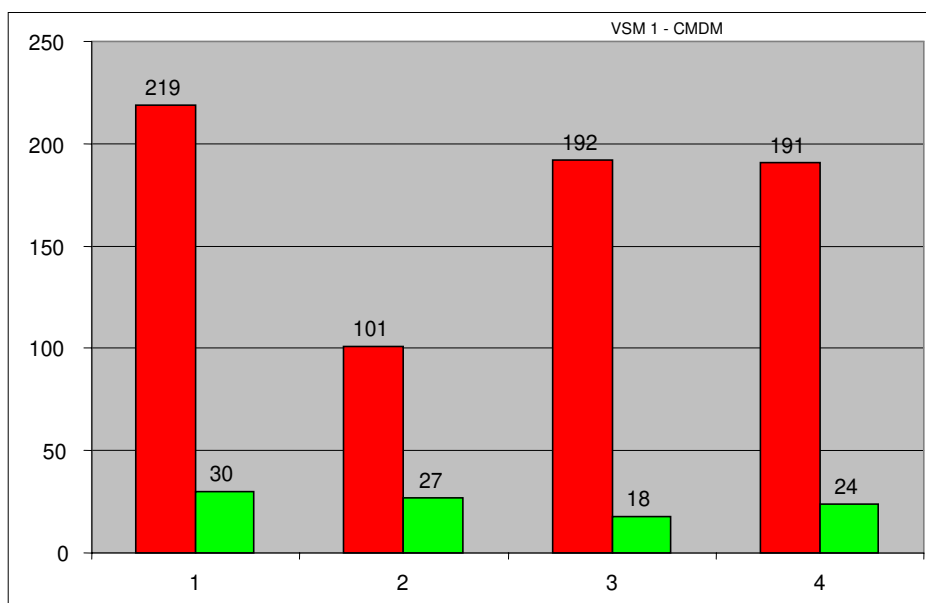
**Table 2**

**The result of VSD**

	VSM 1	VSM 2	VSM 3	VSM 4
Current state	219	101	192	191
Future state VSM	30	27	18	24

**Figure 7**

**The result of VSD**



**CONCLUSIONS**

The Value Stream Management as system has been proven its potentials. The VSM made possible to drastically reduction of Leadtime which improves quality. Costs also were drastically reduced and the cost structure can be optimized. The Cost of labor can be optimized. The case study results in Table 2 and Figure 7 show the efficiency of VSMM.

- Initially the production has been run in 11 VSM instead of 4 VSM.
- Lead time (LT) was reduced from instable 1600 min to 152 min ✓.



- Space freed 20%, ✓
- Scrap decreased from 1.13% to 0.67%. ✓
- The development totally took 20 days.
- The results came in the next day after the new layout introduction. ✓
- Production is stable. ✓ After one year the LT is reduced 27 times. ✓
- The quality of the people increase

These effects can be presented in the managerial accounting and controlling system and with their methods the planning and organization of production can be quickly optimized. Also contributes to the improvement of efficiency of the management information systems such is controlling, accounting, financial planning and information technology.

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## CARBON PRICING IN DYNAMIC REGULATION AND CHANGING ECONOMIC ENVIRONMENT - AGENT BASED MODEL

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### **ABSTRACT**

*Like many industries, the financial services sector increasingly confronts a market environment in which both consumers and regulators are anxious to see organizations develop green products and services that hold the promise of mitigating environmental degradation and encouraging sustainable use of resources. Industry players must therefore be adept at reading demand signals from each of the primary financial services sectors (retail banking, corporate and investment banking, asset management, and insurance) while also keeping a sharp eye on evolving changes in these highly regulated businesses driven by proactive government policies (Porter and Kramer, 2006). Weather derivatives, energy trading and natural resource exploration are only few of the sustainability topics vital for the economic future of our province (Alberta), and the entire world. Our paper presents an overview of complex adaptive systems and the basics of building a model of CAS. We consider CAS to be well suited to the modeling of market behavior because it is robust to micro-level behavioral influences and allows the inclusion of heterogeneous agents. CAS also offers the possibility of capturing the dynamics of agents experience through features such as learning and memory. We present an agent-based model for pricing carbon emissions and results of simulations based on Alberta's current data of demand, supply, and regulation of carbon emissions. Pricing carbon drives innovation in technologies that improve efficiency, reduce pollution and recognize the social cost of business. We analyze the results of simulations in a dynamic framework of changing parameters and input variables.*

Keywords: Agent Based Modeling, Carbon Market, Alberta Carbon Trading Scheme, Swarm software

### **INTRODUCTION**

Global warming is a looming threat to our world today- a scary threat that our consumption and production habits over many years could doom the earth and make it uninhabitable in a few centuries to come. Sea levels are expected to rise, weather patterns are likely to change dramatically, frequent extreme weather occurrences will likely ensue, agricultural yield will necessarily drop, and some organisms in this ecosystem (including humans) are likely to be unable to adapt rapidly enough and go extinct. These are just a few of the consequences of unbridled global warming trends (Houghton, 1994). If our production and consumption processes remain ingrained with practices that heavily emit greenhouse gases, it is unlikely that they could be sustained for long. Worse still, by continuing on the current path, the world as we know it today may self-destruct.

The foregoing underlines the general need for a change in how we live, in order to preserve the earth. Practices in manufacturing, agriculture, exploration, and transportation especially need to be revised with the aim of reducing their current negative externalities. Since industries thrive on energy, this roughly translates to the development of alternative energy sources which shall reduce our dependence on fossil fuels. The burning of fossil fuels for energy has been identified as the heaviest culprit in green house gas emissions. Substituting other methods of energy generation should lead us to a cleaner and healthier world. However, this alone has proven an inadequate strategy due to limits to the development of technologies which efficiently harness these alternative sources.

Since energy-source substitution on a global scale cannot be an instantaneous occurrence, a major complementary strategy which is currently being given profuse attention is abatement; which entails the reduction of emissions by the establishment of projects which remove greenhouse gases from the atmosphere. The main focus of this approach is on carbon emissions which account for about 90% of total green house gas emissions (*US Gov*, 2006). These projects are expected to be paid for ultimately by emitters, who shall be required to buy up chunks of them in order to continue producing after exceeding their allotted emissions limit (*Stavins*, 2008). This added cost of production may itself discourage excessive emissions and encourage firms to develop better emissions-efficient processes and technology- thereby speeding up the process of achieving more sustainable habits in pursuit of an inhabitable future.

The strategy adumbrated on above is our broad concern in this study. In particular, how this framework that makes industry responsible for the social cost of its carbon emission-inefficient practices, can be optimally operationalized is our main focus. The current global trend is to execute this framework through markets where those chunks (defined as emissions credits) are sold at prices determined by market forces. These markets are burgeoning by the year, and starting to evolve from amorphous setups into more developed structures with the advent of stimulating global regulations and national policies (*Capoor and Ambrosi*, 2008). However, their form can hardly be understood through existing traditional market models given their evolutionary nature which evades the many assumptions intrinsic to traditional economic theory. Models imbued with more realism (perhaps at the cost of tractability) seem necessary if we are to understand the dynamic workings within these markets.

Our paper presents an overview of complex adaptive systems (CAS) and the basics of building a model of CAS. We present an agent-based model for pricing carbon emissions and results of simulations based on Alberta's current data of demand, supply, and regulation of carbon emissions. Pricing carbon drives innovation in technologies that improves efficiency and reduces pollution. We analyze the results of simulations in a dynamic framework of changing parameters and input variables. Agent-based modeling and complexity research methods aid in tackling problems related to economics and climate change, provide quantitative data for assessment of policy, and regulate intended results in a complex dynamic framework. We aim by this study, to provide a starting point in model building by constructing a simple model that captures some salient realities about the agents,

environment and dynamics of interactions within the Alberta Carbon Market. We hope to have also built a model that shall be robust to mutations over time and that shall prove adaptable to other similar financial markets. In terms of practical gains, we also hope to have gained an understanding of what types of structures and regulatory policies could aid stability and healthy buoyancy of prices within this market.

In what follows, we give a brief background on agent based models, followed by a description of the Alberta carbon market. In the third section, we describe our proposed model and explicate on its peculiarities. We also discuss preliminary observations and our expectations from future simulations. The concluding section considers the gains, limitations to the study and areas in which the model could be improved in future studies.

## **MATERIALS AND METHODS**

### **Agent based models**

The modeling approach proposed for this study is one which is sensitive to the complexity inherent to the study of markets. Previously, economic researches of markets have been based on reductionist assumptions in pursuit of tractability. In particular, such models assume homogeneity of agents, i.e. *homo economicus* – the rational utility seeker – and thereby discount the full behavioral diversity of human motivation. While this has been helpful in gaining enlightenment on how diverse variables are related when isolated, the resultant theories have often been confounded by the realities suggested by empirical time-series data (*Campbell, 2000*). A very plausible explanation for these deviations may be that reductionism assumes away the complex realities of interactions among variables (in a model) and also ignores the underlying dynamics of interactions among economic units.

Based on this line of thought, a growing army of researchers have in more recent times turned attention to the study of complex systems. Fortunately, this school which embodies both a philosophy and specific techniques has been burgeoning with the development in sophistication of methods for exploring complex phenomena in other fields such as biology, computing and information technology. Today, these evolving methods which were born in other fields are being applied and adapted to the meaningful study of macroeconomic phenomena as well.

Agent based modeling is a technique for modeling complex phenomenon. Classical econometric models have failed over time to explain trends in real-world data (*Mitchell, 2009; Campbell, 2000*). Perhaps this stems from the fact that econometric models like most positivist models, assume a reductionist stance to problem solving (*Descartes, 1637/2006*). Econometric models assume macro-level behavior without consideration of how that behavior is generated. Such neglect may be trivial for static systems, but becomes costly when the system or unit being studied has a dynamic and adaptive nature.

Real economies are adaptive, and markets evolve over time. Classical economics (upon which econometric models are built) often attributes this evolution to exogenous factors. In reality, a market may evolve due to the interaction of factors within itself apart from exogenous influences. This is the logic underlying agent

based modeling; the parts together may yield behavior that greatly differs from the anticipated behavior of their additive whole, and the explanation of macro-behavior may well be hidden within the dynamics of micro-level interactions of constituent units (Beinhocker, 2006). While this is true in most complex phenomenon, it is most obvious during bubbles and crashes.

Therefore, in order to capture the complexity of market behavior rather than making assumptions a priori, agent-based modeling simulates the behavior of many heterogeneous units which interact to define the market. This intuitively has a greater chance of achieving a tight fit with real world data than a simplistic model based on assumptions built on an ideal world (Axelrod, 1997). As outlined by Bonabeau (2002), agent based modeling yields promise when non-linear relationships are likely to subsist, agents are deemed heterogeneous in their interactions, averages are not reliable, and individual agents exhibit behavior such as memory, learning and adaptation in the system of interest. The Carbon trading market shows signs of all these features and so seems a great candidate for agent based modeling.

Carbon trading as a concept is relatively new. It dates only as far back as 1997 (Kollmuss et al., 2010). Even so, the formal adoption of the Kyoto protocol subsequent to the Kyoto convention has been very slow. In Canada, it is still a very young and underdeveloped market. Thus, rich data such as time series or panel data are scarce. Due to the fact that many countries are yet to incorporate actual frameworks or policies, the market also does not exist in many countries. Thus, even cross-sectional data is scarce. This lack of data is one reason why agent based modeling is well suited for this study. By simulating data, it is hoped that we can understand the dynamics of the market despite not having had the market for an adequately long period of time and across diverse countries.

A related but equally compelling reason for employing this modeling technique is the evolutionary nature of the market. Agent-based modeling easily lends itself to simulations of evolutionary systems (Axelrod, 1986) due to its micro-level development. It allows for building in adaptive agents who themselves evolve to define a dynamically evolving market. It shall also illuminate our understanding of the relative importance of small differences in initial conditions on short, medium and long-run outcomes. Consequently, concepts such as information, memory and learning can be incorporated into micro-level behavior, and the effects of these on the quality of the market can be analyzed.

Past efforts in market modeling using an agent-based approach have mainly focused on the stock markets. Among these, the research styles range from purely analytic to heavily computational (LeBaron, 1995). Analytic studies such as Kelley (1956) and Friedman (1953) presented arguments which emphasized the role of agent heterogeneity in strategies and ultimate survival within an economic environment. Figlewski (1978) examined heterogeneity within the context of wealth dynamics and specifically considered how wealth dynamics affects the convergence of a market to efficiency. More recently, Bossaerts (1994) discovered that the speed of the learning process of different agents can have significant effects on the stationarity of financial time series data. All these demonstrate diverse aspects of the role that heterogeneity may play in market outcomes.

Computational models have witnessed an upsurge in numbers and variety in recent times. Drawing on recent developments in artificial intelligence and computing science, modern approaches such as genetic algorithms (GA), classifiers, and neural networks have been applied to financial problems in addition to more traditional methods such as least squares learning. *LeBaron* (1995) advocates that the main prerequisite to determining the appropriate computational technique for a given study is having precise knowledge of: “what domain the agents knowledge lies in; what types of equilibria lie in that domain; and how agents move in this domain by updating beliefs” (p. 2).

*Lettau* (1993), *Arifovic* (1996), and *Routledge* (1994), employ the use of well-defined simple economic models which focus on learning as a tool to explore both stability and evolution of markets within genetic algorithmic frameworks. These frameworks are generally less open in structure relative to neural networks such as that used by *Beltratti and Margarita* (1992), and classifier based systems used by *Marengo and Tordjman* (1995). In generally, these studies found scenarios in which the markets do not settle down to equilibrium for long due to agent heterogeneity in terms of risk-attitude, information quality and accessibility, network-types and memory.

Perhaps the most extensive agent-based market simulation to date, the Santa Fe Stock Market attempts to fuse a well-defined market trading mechanism structure with an inductive-learning oriented classifier based system (*Arthur et al*, 1997). This study shall lean on the logic of the techniques employed by the Santa Fe Stock Market in building a simple evolutionary model with specific applicability to the carbon-trading market.

### **The Alberta carbon market**

Carbon-trading markets have recently sprung up in many developed countries- subsequent to the Kyoto protocol which enlists it as one of the major abatement strategies for economies. The Alberta emissions trading scheme is one of such responses which was effectively created in July 2007 by legislation (*Alberta Environment*, 2008). Its main objective is to regulate the emission of large emitters by determining an efficient price on emission, which will tend to reduce emissions without crippling the productivity of firms. The Large emitters- numbering about 100 corporations- are defined as those corporations which exceed 100,000mtCO<sub>2</sub>e in emissions per annum (*Alberta Environment*, 2007). They are required by statute to reduce this by 12% every year from 2007 to 2014 calculated with a baseline of 2003-2005 (*Specified Gas Emitters Regulation*, 2003). The top 30 emitters were responsible for about 87 percent of total emissions in 2006 (*Goddard et al*, 2008). This implies a non-normal distribution where the demand side in the market is likely to be dominated by a strong minority with very large demand size. This reality further justifies the adoption of a complexity-oriented methodology which makes no rigid assumptions about the underlying distributions in the market. With agent based modeling, the effect of power laws in ensuing interactions can also be recognized.

The Alberta scheme, while sharing many similarities with other emissions trading schemes, is different in a few ways. It is planned as a closed market. The market is administered by government with a stakeholder-based approach to

decision-making and planning. Alberta statute recognizes only offset projects executed within Alberta (Kollmuss et al, 2010). Also, only Alberta-raised credits can be surrendered for compliance purposes by regulated Alberta companies. However, a leakage may exist in future if players from other markets are able to purchase credits from the market in order to meet compliance in their own environment. This may lead to an exogenous hike in the prices of credits. Currently, this is not the case. Non-Alberta corporations seem to be restrained from this incursion either because the markets are still emerging (information issues), compliance is yet to become strict, prices are not sufficiently low (especially when transaction costs are factored in), or because their own local regulations are still fuzzy.

There are two types of carbon credit recognized by the provincial government- Emissions performance credits, and Alberta-based offset credits (*Alberta Environment*, 2011). An alternative method with which a firm could buy up rights to pollute beyond stipulated thresholds include- Climate change and emissions management fund (CCEM). Also, corporations could improve their operations in order to consume within the statutory level stipulated.

## MODEL SPECIFICATION AND DISCUSSION

### Agents

By definition, agents in every market can be broadly classified into two groups; buyers (the demand side) and sellers (the supply side). The Alberta Carbon market, despite having several players active in it conforms to this functional classification. From the Specified Gas Emitters Regulation (*Alberta Environment*, 2011), we can clearly identify the buyers as including large regulated emitters who require the carbon credits for compliance. These large emitters are a hundred in number and they all fall into the regulation cadre due to their emissions being in excess of 100mtCO<sub>2</sub>e per annum. In order to engender realism, the same numbers of large emitters are recognized in our model. It is noteworthy however, that this is not a homogenous group, since 30% of these large emitters is responsible for over 80% of total emissions (*Goddard et al*, 2008). The behavior of this top 30 is likely to be different from and have more impact on the market than that of the lower 70. Also there will be some of these emitters who will be able to develop emissions-efficient technology easier and thus save on cost of credits. These details on heterogeneity shall prove resourceful as the model gains sophistication.

In addition, apart from regulated firms, it is possible that traders will be allowed over time who intermediate in the market on behalf of investors and speculators (as is obtainable in stock markets). Their behavior is likely to differ meaningfully from that of large emitters who need credits as inputs for production. Our model includes 20 of such position traders who predict the medium to long term profitability of carbon credits based on adaptive expectations.

We start with a very simple premise that each agent has an objective function which it attempts to optimize subject to some constraint. From the preceding paragraph, we established the (non-exhaustive) existence of two major types of buyers- large emitters, and traders. We assume that they each attempt to optimize

as follows; emitters minimize expenditure on credits subject to production targets while traders maximize profit gained by trading credits. The optimization task for traders will incorporate their forecasts and changing strategies due to learning and memory. The emitters in our model minimize their cost subject to their production function, that is;

$$\text{Minimize: } C = P_c C + P_e E \quad (1)$$

$$\text{Subject to: } Q = C^a E^b \quad (2)$$

Where  $C$  = Cost function

$P_c$  = Price of a unit of carbon credit

$P_e$  = Price of a unit of the CCEM

$C$  = Quantity of credits used as inputs

$E$  = Quantity of CCEM used as inputs

$a$  &  $b$  = Elasticities of substitution for both inputs

We assume the Cobb-Douglas production function for simplicity. We also assume that emitters differ in their returns to scale based on size, with the largest 30 experiencing decreasing returns to scale ( $a + b < 1$ ), while the remaining 70 enjoy increasing returns to scale ( $a + b > 1$ ). Thus, as modeled, emitters buy just as much credits as necessary to produce their cost minimizing level of output. For example, if price of credits were to increase (*ceteris paribus*), they will choose to purchase more of CCEM to the extent that their cost minimizing goal is achieved. These functions feed into their individual demand functions to determine their behavior as the demand side of the market.

We use very simple heuristics to design traders assume for simplicity that only momentum traders exist within the market. They simply make their choice to buy when they foresee that prices will be higher in a future period by which they could sell and earn a profit. Specifically, momentum traders forecast of transaction price of credit in the next period is denoted as:

$$P_{t+1} = 1/N [ \sum P_{t-n} ( P_{t-n} / P_{t-n-1} ) ] \quad (3)$$

Where  $n = 0, \dots, 4$  is the number of lags in periods

$P_t$  = Price in the current period

$N$  = number of items summed

As indicated, we allow  $n$  to vary between 0 and 4 while setting  $N = 5$  thus keeping the forecast as a function of the 5 year moving average of credit prices.

Sellers on the other hand were indicated to include- the unregulated industrial sector (facilities emitting below 100mtCO<sub>2</sub>e/yr), regulated corporations, the agricultural sector, and project developers (*Alberta Environment*, 2011). In order not to complicate the model excessively, we assume that regulated companies cannot sufficiently reduce their emissions to the level that they can earn credits which they resell. Companies within the unregulated industrial sector may raise credits by reducing their emissions for instance and sell those credits earned to the regulated corporations. Their goal will be to maximize earnings from sales of credits subject to the constraints of their costs and emissions-reduction capacity. In essence, unregulated firms have a carbon credit supply curve that is a function of changes in their scale of production, level of accessible technology, and the market price for credits.



That is;

$$QS_c = f(\Delta Q, T, P_c) \quad (4)$$

A firm which increases its scale of production for instance, has to either reduce its supply of credits to the carbon market or access a higher level of carbon efficient technology in order to maintain its previous supply levels. Similarly, the price of credits acts as an incentive to firms if by selling such credits, they are likely to make more profit than by increasing their production levels. Unregulated firms as designed in our model, adopt a very basic forecast and shortsighted heuristic;  $P_{t+1} = P_t (P_t / P_{t-1})$  (where  $P_t$  = Price of credits in current period) in which price in the next period is a function of price in the current period and the previous period.

The agricultural sector and project developers which are directly involved in abatement projects (such as carbon sequestration) shall seek to maximize their earnings from credits subject to the cost of those abatement projects. Thus they face a supply curve of the form;

$$QS_c = f(P_{t+1} / C_p) \quad (5)$$

Where  $C_p$  = Cost of the project per unit of realizable credit

$QS_c$  = Quantity of carbon credits supplied to the market

If  $P_{t+1} / C_p \leq 1$ ; No profit is made, no developer wants to participate in an ungainful market and supply  $QS_c = 0$

If  $P_{t+1} / C_p > 1$ , Profit is made, and  $QS_c$  varies directly with the level of profit.

Their function is similar to that of traders but differs in that a 10 year moving average is used rather than the 5 year variant (i.e.  $N = 10$ ). This follows intuitively from the fact that projects are often highly capital intensive and take a while to implement. Also, agricultural and project developers have a lower threshold for risk than traders, and so attempt to access more information by longer memory.

Finally as can be expected, traders also feature on the supply side by employing the previously discussed forecast heuristic; they take positions based on anticipated trends and sell to the market if they anticipate a possibility of making a spread or cutting a loss. Typically, traders in the model sell whenever current price exceeds the price at which they bought, provided prices are expected to take on a decline.

Our agents all exhibit behavior as defined by objective functions very much unlike the agents in *Gode and Sunder* (1993), which employ “zero intelligence” budget constrained agents because agents in their model are not capable of learning or adaptation (their study is more concerned with institutional dynamics). Other studies have modeled agents based on trading rules without any objective functions, but these achieve simplicity at the cost of stifling the evolution of new strategies. Agents in our model are more similar to those described by *Levy et al.* (1994), *Arifovic* (1996), and especially with *Arthur et al.* (1997) which incorporate forecasts of future prices into their agents’ decision making framework. Future models are likely to improve on this agent specification by allowing for variability of inter-temporal optimization plans.

### **Trading Mechanism**

In the absence of the convenience afforded by equilibrium modeling, it becomes necessary to specify the process through which trading occurs and by which the

proposed market clears. Agent based markets mostly handle the clearing problem either; by assuming that price simply adjusts to excess demand, by constructing a market in which temporary equilibrium prices easily subsist or by explicitly modeling trading in a continuous form as prevalent in actual markets (*LeBaron, 2001*).

For our purpose, the second method seems most appropriate. Demand functions of agents are likely to be reasonably well behaved since the carbon market is unlikely to yield high-frequency price dynamics given its nature. The first method is fast and acknowledges perpetual disequilibrium in the market but requires the artificial inclusion of a market maker (*Farmer and Joshi, 2001*), while assuming constant market depth (*LeBaron, 2001*). The third method seems most appealing with respect to its high level of realism, but is unlikely to be worth the cost in efforts outside high-frequency market applications.

### **Traded Commodity**

The Alberta provincial government recognizes two types of carbon credits- Emissions Performance Credits, and Alberta-based offset credits (*Alberta Environment, 2011*). In addition, firms could substitute the CCEM which is currently priced at a flat rate of \$15 per unit of emissions. The pricing of the CCEM thus effectively functions as a price ceiling for credits.

Unlike stock market models which frequently have a risk-free commodity and a risky one between which traders choose, the carbon market necessarily incorporates this choice only for traders and project developers. The choice for regulated firms precludes this risk free option since they require the credits for compliance, but includes the CCEM. To enhance simplicity, we consider the two types of credits as one type from two sources. Therefore for the purpose of this study, we consider both performance credits and offset credits as identical commodities- simply called carbon credits.

Our commodities also differ from the stock market variants in their fundamental nature. Traders in the stock market often read signals from announcements regarding the fundamentals (such as dividends or earnings) of securities. In fact, their forecasts are mostly a function of these. Carbon credits lack this signaling facility from fundamentals. Thus price forecasts are likely to be made mostly based on expectations of demand for those credits by regulated firms, relative to supply.

Frugality in the number of included commodities is important because the heterogeneity of agents itself presents complexities (both analytical and computational) which may be difficult to study in the mire of many commodities.

### **Calibration/Validation**

Validation of this simulation is likely to present certain hurdles which are likely to diminish over time. As suggested by *LeBaron (2001)*, validation could be achieved through calibration of parameters with certain benchmark cases which converge into a well defined homogenous agent equilibrium. Unfortunately, this type of data is as yet unavailable in actual carbon markets which are quite new and just emerging. Over time, calibration will likely become feasible as the market matures.

Being an exploratory study of the carbon market, our main claim to validation is in avoiding the introduction of features which are not apparent or likely to be

evident in the actual carbon market into our model. This representativeness, while not being adequate validation, does give some credibility to our findings. We expect that future studies will be better equipped with the relevant data sets for calibration.

### **Evolution**

Evolution is at the core of agent based modeling. When agents interact among themselves in a market, each seeks to maximize certain objectives by using specific strategies. Strategies compete in the marketplace, and intuition suggests that over time the less-competitive strategies will be squeezed out. This means that agents will abandon those strategies and not necessarily that they will themselves be pushed out of the market. This seems a more realistic expectation than the argument by traditional economic theory (See *Friedman*, 1953) which focuses on the agents themselves rather than their strategies.

As these strategies interact in the marketplace and the less-competitive ones get weeded out, it is likely that the surviving ones may be combined and mixed in the bid for superior strategies. Once these hybrids are born, they again contest with existing strategies, and again the weaker strategies in the market get weeded out. The process continues over time and may be influenced by the intermittent entry of entirely new strategies which also strive for survival. This process describes the kind of evolution that exists in actual markets and is very likely to prevail in carbon markets.

This perspective of evolution as a mutation of strategies rather than in terms of rational/irrational traders allows for an intelligible representation of learning among agents (*LeBaron*, 2001). Perhaps within the stock markets, rationality may be fruitful bases for exploration. However since the agents in our model have heterogeneous goals and not all are traders (which are reasonably classified based on rationality), irrational agents are likely to exist. As such, “irrational” agents as described by *Blume and Easley* (1990) may be favored by the market, especially where power laws have a strong pull.

Our agents evolve their strategies based on risk attitudes and past performance of strategies. We make no prior assumptions about which strategies are rational and which are not. As identified by *Kyle and Wang* (1997), we also expect that certain evolutionary pressures may cause the market to favor agents that are excessively risk-seeking in the long run. We expect that changing the rate at which strategies are updated alone will significantly influence market mutations.

A key related concept is memory. Trading agents are modeled to vary in their memory lengths. Price forecasts which are a basis for strategies are made partly as a function of previous prices. Agents differ in the extent to which they remember prices—some have much longer memories than others. Some agents may also perceive only more recent information as being relevant to decision making. We incorporate this feature as well into our model to allow for an evolutionary market with realistic agents.

### **SOFTWARE**

Due to its flexibility and accessibility, Netlogo 4.1.3 is the software chosen for the purpose of this study. Apart from being built to ease the technical difficulty inherent to simultaneous simulation of activities of agents within a system, it also

affords a comprehensive user guide which most other relevant software such as Repast and Swarm lack. Thus, its codes are much more accessible and easier to learn. These advantages are further accentuated by the software's 2-Dimensional graphical interface.

Using Netlogo 4.1.3, we ran two separate preliminary simulations for this study; one representing the very tame market (without traders), and the second one with traders introduced. We also ran the simulations for 100 periods each. The primary aim of implementing two runs was to tease out the influence of traders on efficient price determination.

## CONCLUSION

In this paper, we have explored issues relevant to building an agent based model of the nascent carbon market in Alberta. We have also specified some details about the proposed model. As the simulation aspect of the modeling progresses, we hope to uncover more pertinent issues. We hope that these shall prove useful in envisaging likely issues that may evolve in the carbon market in future.

One major finding in our preliminary simulation was that the inclusion of traders into the model prevented the market from reaching equilibrium during the 100- period span, while equilibrium was attained within the first 48 periods of the tame market. The traders being momentum traders by design kept the market spinning out of perceivable tendencies towards equilibrium with wild oscillations in price and traded volumes. Prices were almost always higher relative to the tame market, while a higher volume of credits were traded than in the tame model. Generally, while being very premature to conclude as yet, the trial runs suggest that traders may be a positive influence on the market in terms of price buoyancy, but may greatly increase volatility within the market. The increase in traded volumes may have been due to increased liquidity brought into the market by traders. The higher prices are likely indicative of noise brought by the traders into the market. However, more evidence is required before a conclusion can be reasonably drawn.

It shall also be useful to compare prices in subsequent runs in our simulation with equilibriums that could be expected given a rational expectations formulation of forecasts. It will be interesting for instance to know whether the wild market converges to a rational expectations equilibrium as similar to that reported by *Plott and Sunder* (1982), in their human experiment.

Subsequently, the software shall be used to run simulations in which the assumption that only momentum traders exist (implicit in the trader's forecast mechanism) is relaxed. Furthermore, future simulations shall vary the number and proportion of traders and also toggle the proportion relative to other supply side agents and emitters. Also an extension of periods beyond 100 may reveal eventual long-run equilibrium, even in the trader-inclusive model.

As yet, calibration of the model is a hurdle which we hope will become surmountable with the development of the market and growth of trade datasets; this will enable more rigorous empirical exploration. This does not however detract from the dividends that this analytical inquiry promises to regulators, and other stake holders.

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