Quantitative Relationship Between Domestic Energy Consumption and the Standard of Living in Hungary

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SUMMARY

The changes in the energy consumption prices in the last few decades have caused a lot of trouble for the citizens. We can observe an undesirable tendency in energy prices indicated by the collective effect of several factors. This leads to difficulties for residents, because their income has not followed the rise of the energy prices. The problem is even worse regarding the fact that a significant part of residential use depends on fossil fuels. Only a small percentage of the citizenship can afford to supply their energy needs from new types of fuels. This paper attempts to determine a relationship between the population's standard of living and energy consumption in Hungary.
Keywords: energy consumption, renewable energy, standard of living.
Journal of Economic Literature (JEL) code: C10; I30; H31

INTRODUCTION

The standard of living of the population is influenced by many factors. Some of these factors can be measured by objective aspects and some of them just from a subjective point of view. Basically, the living standards are the projection of the economic development of a country. In Hungary we can demonstrate that the standard of living is lower in the economically and socially underdeveloped regions and the factors influencing living standards are different than in other regions with better conditions. The findings of my study showed that the different scientific methods do not use a uniform approach to examine the population's living standard and there is no generally accepted trend in research and analyses. Specialists in philosophy, economy, sociology, healthcare, etc. consider different aspects of the meaning of standard of living and about its quantification.

This paper is an integral part of an extensive research. The goal of this research is to examine the energy consumption of the population and to design a theoretical model based on the results. While creating the model I would like to take into consideration the population's opinion about their living standard, the composition of energy consumption, and the level of demand and acceptance of renewable energy resources. My question considers the aforementioned factors: Is there a basic correlation between the population's energy consumption, the indicators of living standard and the other indicators which have a direct or indirect connection with the standard of living? In this study there are of course factors that are subjectively chosen, because, as I mentioned before, the different scientific fields have not formed a consensus about the measurement of living standards.

The Energy Management of the Population

The examination of the population's energy consumption is an essential part of the research. This topic is highlighted because in the last few decades the volume of energy consumption of the households has not changed significantly, but the structure of consumption has altered. Before the millennium most households' heaters were converted to use the gas grid due to the high state subsidy, comfort aspect, etc. Despite the fact that the gas prices rose after the millennium and the subsidies changed relevantly, the proportion of gas in energy consumption has not decreased, only increased.

There are several causes for this:

- the increase in gas supply of the settlements
- gas price subsidy system;
- increase in housing stock;
- decrease in population density;
- increase in average floor space.

Several factors have had a significant effect on the structure of residential energy consumption. These include the decrease in district heating, a rise in the electricity consumption, the internal change of solid-fuel consumption and the wide-ranged spread of alternative energy consumption (HCSO 2008).

Table 1
Hungary's Energy Consumption in Petajoule

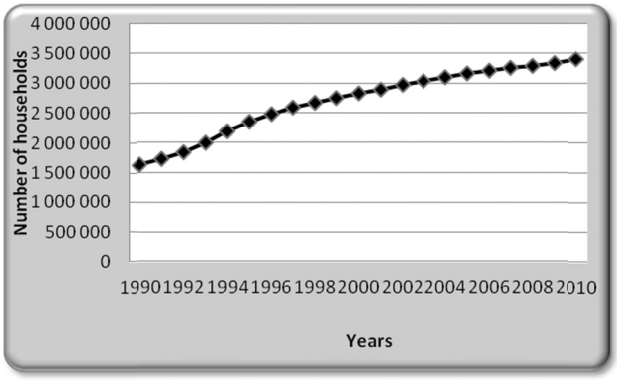
Years	Industry except water and waste management	Building industry	Agroforestry and fishing	Transportation and warehousing	Population	Other sectors	Sum
2000	368.0	8.8	38.7	48.3	400.6	190.7	1 055.1
2001	373.3	9.4	39.2	48.9	416.0	200.4	1 087.2
2002	369.6	9.4	38.0	48.6	402.3	198.9	1 066.8
2003	370.4	9.5	37.8	48.1	419.4	206.4	1 091.6
2004	372.5	9.6	38.0	48.2	410.3	209.5	1 088.1
2005	414.0	10.6	36.3	49.3	425.4	217.6	1 153.2
2006	421.3	10.7	35.9	50.3	415.8	218.0	1 152.0
2007	428.9	9.2	34.2	50.6	399.5	203.0	1 125.4
2008	426.7	9.0	35.1	50.5	402.5	202.5	1 126.3
2009	386.2	8.7	32.0	47.9	383.3	197.7	1 055.8
2010	410.2	8.0	31.0	48.0	390.9	196.9	1 085.0

Source: HCSO

Table 1 shows that the gas consumption has made up more than one-third of all energy consumption in every year in the last decade in Hungary. The energy demand of the population did not vary much. As an effect of the economic crisis (the changing energy prices and subsidy system, etc.) the energy consumption decreased by 10% from 2005 to 2010.

The Piped-gas (grid) Supply of the Households

There was piped-gas supply available in 2,877 settlements in the year 2010, which means 91.2% coverage in Hungary. The gas supply since the change of political system is well demonstrated in Figure 1. Between 1990 and 2010 the number of gas consuming households increased by 3.74% in every year on the average.



Source: HCSO

Figure 1. Piped Gas Consuming Households Between 1990 and 2010

The amount of gas consumption did not increase parallel with the number of gas consuming households. In the examined period the actual consumption showed a hectic change, as shown in Figure 2. The usage reached its maximum in 2003 when the gas consumption per household was 1505 m^3. Consumption dropped progressively in the following years, so in 2010 it was just 1067.7 m^3 (HCSO, 2009).

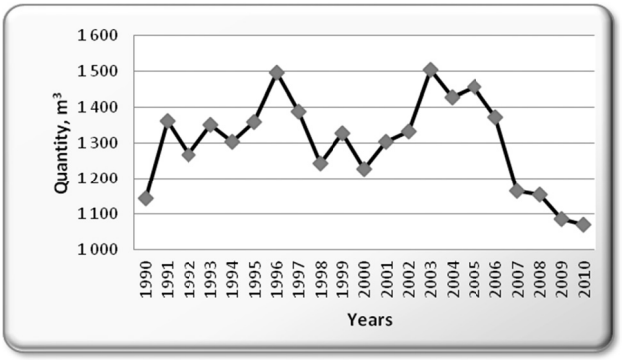


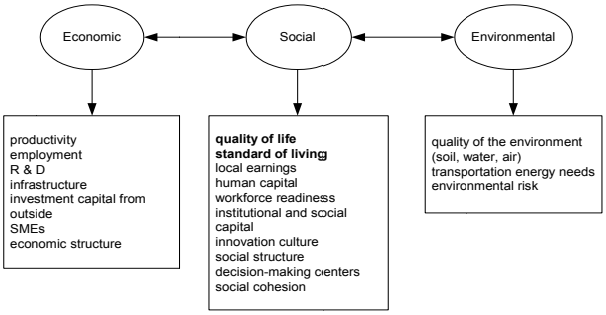
Figure 2. Household Gas Consumption per Year in Hungary, m³

Opportunities and Effects of Energy Resources

The usage of traditional energy resources is becoming more and more costly for households so we have keep in mind the option of the utilization of renewable resources. A difficulty is that the redesign of energy production is a long process which is influenced by several other factors:

- safety of energy supply;
- diversification of energy supply;
- environmental aspects;
- ensuring social and economic cohesion (Nádudvari, 2007).

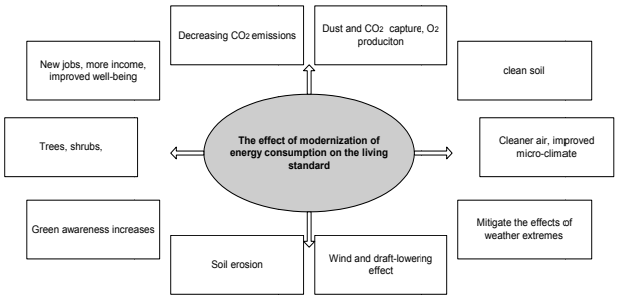
The successful transformation can lead to the creation of new local jobs, reducing the costs of the population, stimulating innovation, saving energy in the long term, etc.



Source: Lukács, 2010

Figure 3. The Effects of the Use of Renewable Energies

The impact of energy consumption on the standard of living (mainly caused by the environmental changes) is highly important in my study. Some of the factors can be quantified easily, but some elements are mainly subjective in the measurement of the standard of living.



Source: Lukács, 2010

Figure 4. The Effects of the Modernization of Energy Consumption on the Living Standard

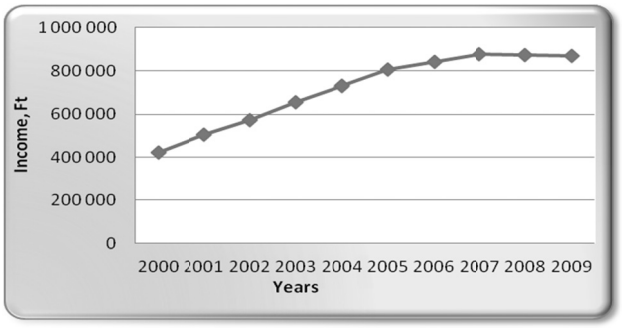
Naturally the investigation seems to be one-sided but as I mentioned before there is no agreement among different disciplines about the usable methodology. Every person ranks their needs for their standard of living (as important, less important, indifferent), but taking into theoretical consideration the opportunity of changing the habits of energy consumption, the model above is the most practical.

CONSUMPTION AND FINANCIAL SITUATION OF THE HOUSEHOLDS

As the data of the Hungarian Central Statistical Office (KSH) show, the monthly net income per capita in Hungary in 2010 was 132,604 Ft, which varies over a wide range in the different sectors. If we examine the data of households given in Figure 5 the income value is more delusive, because many families have to meet their needs with less money than the average. After the millennium the average income increased till 2007 and after that we can see a dropping tendency.

THE RELATIONSHIP BETWEEN LIVING STANDARD AND ENERGY CONSUMPTION

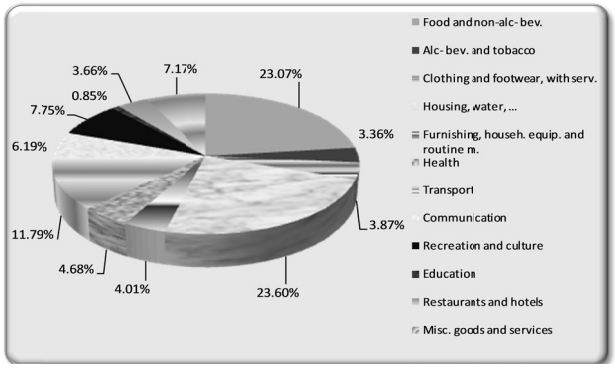
The living standard of the population can be examined primarily by the income and labor status, through consumed goods and with other material indicators. Generally in international comparisons our basis can be the GDP per capita or the other indices derived from the national economy indicators. According to Bergh (2009), the usage of GDP to measure the standard of living has been questioned in the last decades, but nobody has stated unambiguously that it is useless, and no justified indices have been created either. Despite the theoretical and empirical criticism the role of GDP in economy, governance, politics and society remains significant (Bergh, 2009).



Source: HCSO

Figure 5. Average Annual Income of Hungarian Households per Capita

The decline of the average income per capita did not result in the decrease of consumption; rather, the structure of consumption changed. The households gave up unnecessary expenditures (such as luxury, holiday travel, high value items, etc. source: HCSO).



Source: HCSO

Figure 6. Annual Expenditure per Household, in % (2009)

The households' highest expenditures in 2009 consist of food, overhead and household expenses (Figure 6). Of the total household expenditures, 23.6% are energy consumption and overhead. Within these costs the proportion of electricity, gas and other fuel consumption is about two thirds.

According to my research aim I have been seeking for the answer: What kind of stochastic relationship can there be between the chosen indicators qualifying and influencing the living standards and the most important energy consumption index?

Testing the Relation with Stochastic Analyzing Tools

During the research I identified the "monthly average gas consumption per one household consumer" as dependent variable, but because of the decrease of heteroscedasticity I logarithmized the dependent variable (see later) and used it in that way for the analysis. The other indicators were involved as explanatory variables as the:

- Net average income (Ft – NET_INCOME)
- GDP per capita (1000 Ft – GDP)
- Gross investment per capita (Ft/capita – INVESTMENT)
- Activity rate (% - ACTIVITY_RATE)
- Environmental investment (million HUF- ENVIRONMENTAL)
- People per 100 housing (person– PEOPLE_PER_HOUSING)
- Regular average number of recipients of social assistance (person – SOCIAL_ASSISTANTE)
- Monthly electricity consumption per household (kWh/month – ELECTRICITY CONSUMPTION)
- Regular waste collection rate of housing (% - WASTE_RATE)

With the support of multiple regression analysis I tried to find the answer to my question: Using the data of the counties of Hungary in 2009, what kind of relationship can be found between the explanatory variables and the dependent variable? As a first step I created a correlation matrix which shows pairwise correlation coefficients. I discovered from the results that the monthly average gas consumption per household mostly correlates with:

- Net income - NET_INCOME;
- Gross investment per capita – INVSETMENT;
- Electricity consumption per household – ELECTRICITY_CONSUMPTION.

To investigate the nature of the relationship of the variables I used the Backward elimination process (Sajtos-Mitev, 2007). In this I involved all the variables into the model which can have logical coherence with the dependent variable. After conducting different tests, just those explanatory variables stayed in the optimal regression model which had a significant relationship with the dependent variable.

As the first step – with the support of SPSS 17.0 – the partial t-test for the parameters of the explanatory dependents are calculated (partial F-probe data is used to test the model):

$$t = \frac{\hat{\beta}_i}{\sigma(\hat{\beta}_i)} \qquad F = \frac{\hat{\beta}_i^2}{\sigma(\hat{\beta})^2}$$

I examined whether the dependent with the lowest „t" (or „F") value is significant or not:

- if the values of the test function were higher than the function value according to the used significance level, the dependent variable is used in the model
- if the values of the test function were lower than the function value according to the used used significance level, the dependent variable is eliminated, because it has no explanatory power compared to the other variables (Ketskeméty-Izsó, 2005).

The table represented below shows step by step the application of the methodology and the results.

Table 2
Optimal Regression Model

Model	Variables Entered	Variables Removed	Method
1	WASTE_RATE, ENVIRONMENTAL, SOCIAL_ASSISTANTE, INVESTMENT, ELECTRICITY CONSUMPTION, ACTIVITY_RATE, PEOPLE_PER_HOUSING, NET_INCOME[a]	.	Enter
2	.	ACTIVITY_RATE	Backward (criterion: Probability of F-to-remove >= 0.100).
3	.	SOCIAL_ASSISTANTE	Backward (criterion: Probability of F-to-remove >= 0.100).
4	.	PEOPLE_PER_HOUSING	Backward (criterion: Probability of F-to-remove >= 0.100).
5	.	ELECTRICITY CONSUMPTION	Backward (criterion: Probability of F-to-remove >= 0.100).
6	.	INVESTMENT	Backward (criterion: Probability of F-to-remove >= 0.100).
7	.	ENVIRONMENTAL	Backward (criterion: Probability of F-to-remove >= 0.100).

a. All requested variables entered.

b. Dependent Variable: LOGGAS

It can be concluded from the Table 2 that the change in the "average monthly consumption of piped gas per household" is determined by the GDP per capita (NET_INCOME) and the regular waste collection rate of housing (WASTE_RATE). So I continued the analysis with these variables.

I tested the assumptions for linear regression models, and I found that the best-fitting model is heteroskedastic, therefore I logarithmized the dependent variable (LOGGAS), which also helped with the assumption of normal distribution (Figure 8). Now, we can observe on the scatterplot in Figure 7 that the variance of residuals is constant, which means the lack of heteroscedasticity after logarithmic differentiation.

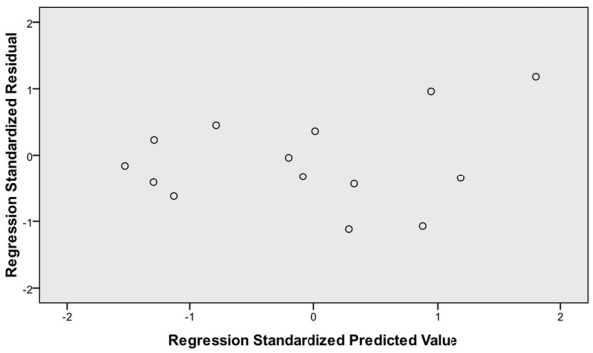


Figure 7. The Standardized Error Terms According to the Standardized Estimates After Logarithmic Differentiation

The distribution of residuals is shown by histogram in Figure 8. This shows that the error terms have normal distribution – since the average is close to zero – and the standard deviation is close to 1.

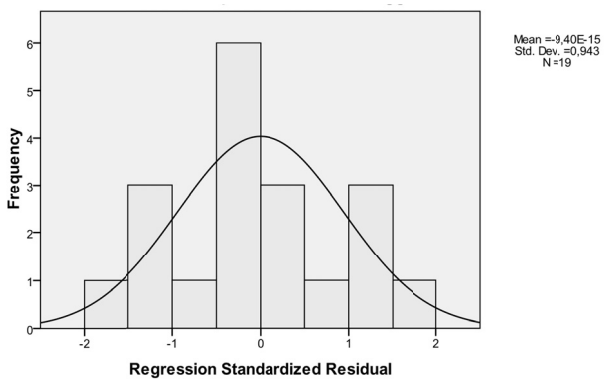


Figure 8. The Standardized Distribution of Error Terms

The applicability of the model is supported through the variance inflating factor VIF index of the two explanatory variables (Falus-Ollé, 2008). The results show no multicollinearity, because the VIF results are lower than the critical value of 5 (see Table 5 below). According to a Durbin-Watson test (Table 4), there is no autocorrelation in this model.

Since the assumptions are satisfied, I analyzed the best-fitting model. The test of the regression model was performed by F-test. The results are shown in the ANOVA table in Table 3. The optimal model can be considered as significant because the significance level is under 5% (Sig=0.7%).

Table 3
ANOVA Table

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.037	2	.019	6.814	.007[g]
Residual	.044	16	.003		
Total	.081	18			

Table 4 shows that the value of the multiple correlation coefficient (R) is 0.678. This proves my conclusion (gained from the correlation matrix) that there is a strong relationship between the explanatory variables and the dependent variable, but it is a statistical relationship of just over moderate strength.

Table 4
Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.678	.460	.392	.05243	1.930

The table shows the multiple regression coefficient (R^2), which shows that 46% of the total standard deviation can be explained by the regression line. This means that the involved parameters of the model played a great role (46%) in the value of "monthly average gas consumption per one household consumer". This value is relatively low, so we can say that the fit of the regression line is not perfect to the data set. The further steps confirmed that more explanatory variables must be involved into the model for a wholly successful analysis.

As a last step I defined the optimal regression function. Results are shown in Table 5. While the variables chosen – net income and regular waste collection rate – may have an effect on the dependent variable – LOGGAS – the effect is not significant. Other variables with higher explanatory power are needed.

Table 5
Estimation of Regression Coefficients

Model	Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	1.706	.295	5.790	.000		
NET_INCOME	8.571E-6	.000	3.620	.002	.823	1.216
WASTE_RATE	-.007	.003	-2.180	.045	.823	1.216

CONCLUSIONS

After the past decades it is obvious that the population's energy consumption habits must be transformed. Because of the effect of several economical, social, and environmental factors the costs of public access to energy (mostly by gas consumption) has increased significantly. In our country it is therefore an important objective to raise the share of renewable energy in the energy sector in the most cost-efficient way. The developments of the last decade give notice that households' energy consumption can be optimized, which can include tool modernization, the use of mixed-fuel-firing systems and the use of alternative energy resources. By utilizing these opportunities the direct and indirect improvement of the living standard of the population is possible.

My conclusion regarding the results is the significant need for further research, because the chosen variables may have effect on the dependent variable but it is not significant. As a sequel of this study I will try to involve more variables which can have a higher explanatory power and can comply with all the assumptions. With future research my goal is to examine more deeply the energy consumption habits of households based on the general regional data.

Acknowledgements

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Bank Taxes in Europe

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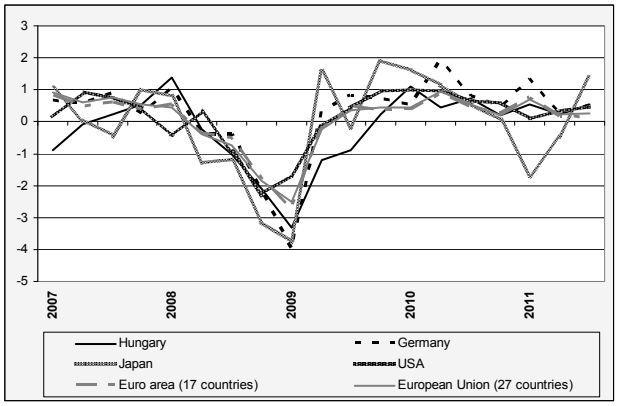
SUMMARY

The ongoing international financial crisis plays a decisive role in our daily lives. As in the previous century, the problem began in the United States and spilled over from there to the member states of the European Union. The history and causes of the crisis between 1929 and 1933 is well known. It seems that we were unable learn from this. The current crisis has no respect for national borders or boundaries of continents. Its effects and treatment measures vary from country to country, depending on how unprepared the country was for the crisis. In the public opinion, banks are responsible for the outcrop of the crisis. In the European Union there is great popular support for the idea that banks should cover a significant part of the liabilities because of causing the crisis. For this reason, and to improve the balance of their budgets, many states in the EU are thinking about imposing a bank tax. This study examines the justification for and the possibilities of bank taxes.
Keywords: crisis, bank tax, European Union
Journal of Economic Literature (JEL) code: G01, G21, H12

INTRODUCTION

On different continents the impact of the actual financial crisis on the gross domestic product has occurred at different times (Figure 1). While the growth of the GDP ceased in the United States, in Japan, Germany and even in Hungary it increased in the early period. However, in the first quarter of 2008 there was a recession in the EU, in the USA and in Japan. The first of them to recover from its weakened status was the United States. Despite this, Japan showed the first positive GDP value in the second quarter of 2009. Germany, which is the European Union's largest economic power, had the largest negative value, which was more than 4%. The euro area (2.7%) and the European Union (2.5%) showed approximately the same rates. From 2009 economic growth began, which was just a short process. In the beginning of this year in Japan there was a decrease, which turned into a negative value in the middle of 2009. From its bottomed out status (-3.3%), Hungary achieved a positive GDP in the last quarter. At that time Germany was emerging out of another poor fulfillment period. Weakening and strengthening periods occurred in turn from 2009 to the last quarter of 2011.Between 1929-33 an intense production process leading to an overproduction crisis was responsible for the situation. For their part in the formation of the current financial crisis banks are being punished in many countries by taxes and other nations are thinking of introducing such taxes.



Source: edited by the author, based on the OECD database http://stats.oecd.org/index.aspx?queryid=350 Downloaded: 08. 02. 2012.

Figure 1. Growth of Gross Domestic Product

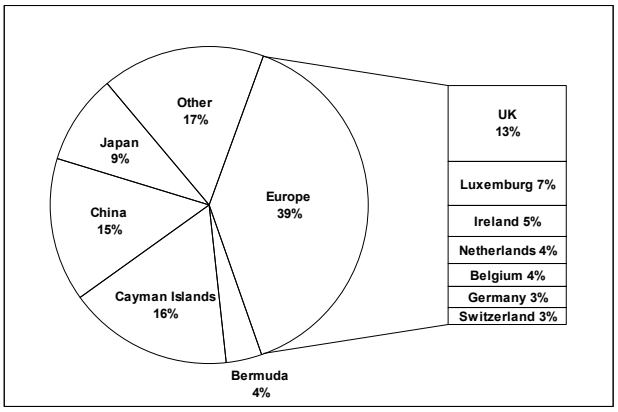
THE WAY TO THE FINANCIAL SECTOR TAX

Among other things securitization and subprime loans are activities which led the need for the banking sector to make amends. Securitization is when loans are isolated and financial institutes issue stocks, which cover the loans themselves. The securitization of loans played an important role in the development of the crisis.

This process produced several products:

- Asset Backed Securities (ABS)
- Mortgage Backed Securities (MBS)
- Credit Default Swaps (CDS)
- Collaterized Debt Obligation (CDO).

Of the above, I examine the importance of ABSs in investment and their effect. In the case of theAmerican asset backed securities Japan and China had together 24% of ABSs European participation was outstanding. The UK took the largest part of the members of the EU, while Belgium, Germany and Ireland together held approximately one-third of the EU owned ABSs (Figure 2).



Source: MNB-National Bank of Hungary, Report on financial stability April 2008 http://www.mnb.hu/Kiadvanyok/mnbhu_stabil/mnbhu_stab_jel_20080415, Downloaded: 14.02.2012.

Figure 2. Foreign Holdings (USD 1,500 billion) of Long-term U.S. Asset-backed Securities (ABS), by Major Investing Countries (June 2007)

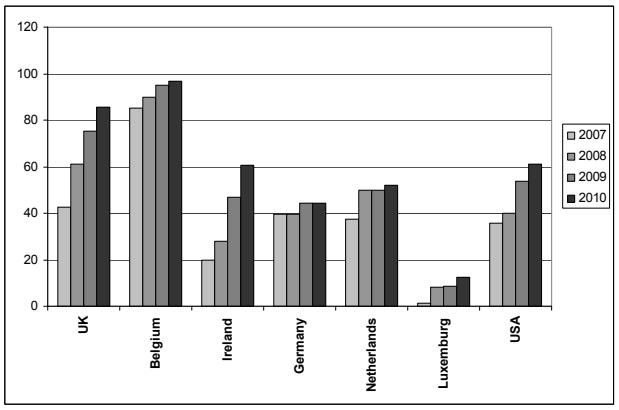
As discussed above, the crisis did not occur in different countries at the same time and to an equal extent. Among other things, this was due to the mentioned ownership structure of ABS as well. To relieve and handle the situation states gave different amounts of support for crisis management and stimulating the economy (Table 1). For instance, Belgium and Germany, which each had 3-4% of the securities, each lent about 30%, and the Netherlands, which had 4%, gave 40% of their GDP in support. The United Kingdom, which had the largest part of the ABS in the European Union, offered more than 50% the amount of its GDP from public funds. In the case of Iceland this fund was more than two and a half times larger than the GDP. From 31 March 2009 there was $10 billion (6.2%) support in Hungary. This rate was low compared with Western European countries.

Table 1
Public Funds[1] committed Between 1 September 2008 and 31 March 2009 to Address the Global Financial Crisis

Country	Ratio of GDP (%)		Amount (billion dollars)	
	Total	of which: fiscal stimulus	Total	of which: fiscal stimulus
United Kingdom	51.6	4.1	1438	114
Netherlands	39.8	0	362	0
Belgium	30.9	0	164	0
Germany	28	6.3	1069	241
Iceland	263	0	0	0
Hungary	6.2	0	10	0
USA	92.9	5.2	13255	742
World	33.8	4.3	20955	2655

Source: UN/DESA: Monthly Briefing World Economic Situation and Prospects, 02. April 2009. http://www.un.org=esa/policy/publications /wespmbn/sgnote_7.pdf, Downloaded: 13.02.2012.

Governments generally used lavish aid programs and they did not handle state money with care. Government debt has been growing since the outbreak of the crisis (Figure 3). This process led to a big problem which had not reared its head since long ago: countries are in bankruptcy and several are going bankrupt. The largest and the most conspicious government debt growth was in Ireland, where it increased from 1.4% in 2007 to 12.6% in 2010. The UK is facing a significant problem with a 42.79% higher government debt, as is Ireland with 40.87% higher debt. The USA has less debt (25.57%) than previous countries. In spite of this, there is still an increase of 1.7 times from the base year 2007 to 2010. Germany was in the most balanced position. as in the reviewed period debt increased by only 4.85%.



Source: edited by the author, based on OECD database http://stats.oecd.org/index.aspx?queryid=350 Downloaded:14.02. 2012.

Figure 3. Total Central Government Debt (% of GDP)

[1] *Includes financail bailout packages (including government guarantees on bad debts), liquidity injections into financial systems and fiscal stimulus packages.*

The crisis is changing its nature. It was financial, but is turning into a crisis of trust. This is one of the most difficult types of crises to resolve. A few consequences of it are:

- liquidity and capital become more expensive for the present and the future., i.e. the price of cash increases.
- there are stricter regulations for credit institutions and banks in order to increase the perceived predictability of capital requirements,
- increasing consumer advocacy and lobbying.

One method of finding a way out of this situation is the increasingly popular use of bank taxes.

LIABILITIES OF THE BANKING SECTOR

Daily uncertainty and burdens which have been created by the crisis cause more and more tasks for governments day by day. The creators of the ABS and other scrutinized loans (MBS, CDS, CDO) were the banks. Thus, banks who are responsible for the crisis have to deal with the situation that they made. Furthermore, in the EU countries expect an improved fiscal balance from the tax. "In the process of the relative stabilization of the financial system, plugging holes in the budget – that had appeared because of that process – became important. One of the solutions – which has political popularity – is introducing various bank taxes" (Kovács 2011: XX).

In September 2009 at the G20 meeting in Pittsburg the IMF was requested to create possible alternatives to a bank tax.In June 2010 it made two suggestions (IMF, 2010):

1. Financial Stability Contribution (FSC)
2. Financial Activities Tax (FAT)

In October 2010 the European Comission chose three different types of taxes to discuss: the FAT, the adoptation of a levy computed on balance sheets elements, and the FTT.

1. Financial ActivitiesTax (FAT), which is the IMF's proposal. FAT user member states: Denmark, Italy, France.
2. Adoptation of a levy computed on balance sheets elements. This type is the most popular in the European Union (Figure 4).
3. a Financial TransactionTax (FTT, also called Tobin tax). States using FTT: the United Kingdom.

The Tobin tax is not a twenty-first century invention. Its idea comes from the beginning of the 1970s. This was the time when the US dollar's exchange to gold and some other currencies in a fixed exchange rate was ended. In financial markets this made turbulence phenomenon a possibility. "The Tobin tax is a possible theoretical tool for maintaining the stability of the international financial market that suggests a tax to depend on the transaction's size in the case of money flows from currency conversion " (Kovács 2011: XX). There were several attempts to introduce such a tax in Europe. In 1974 it was introduced in the UK for British securities on the British stock exchange. The rate was set at a very low level. Sweden in 1984 imposed it on shares and in 1989 on debt securities. It caused a decrease in turnover, and therefore it was abolished in 1991.In 2011 the Comission proposed to the Council the introduction of only the FTT, saying that the final proposal would be developed by December 2011 to make way for introduction in 2012. However, its finalization has been delayed.

Source: edited by the author, based on the European Banking Federation database

Figure 4. Member States Adopting a Levy Computed on Balance Sheets Elements

The European Banking Federation opposed the FTT for several reasons. Among other things they refer to the problem of bad timing and to its non-standardized introduction. Books dealing with the Tobin tax mention that it is only effective when introduced all at once and globally. "Due to the mobility of money and capital markets, circumvention of national and regional introduction will be an obvious answer from the market. In addition, the timing of introduction is not appropriate because the banks' lending activity will be blocked., thus impeding the recovery of economy" (Kovács 2011: XX).

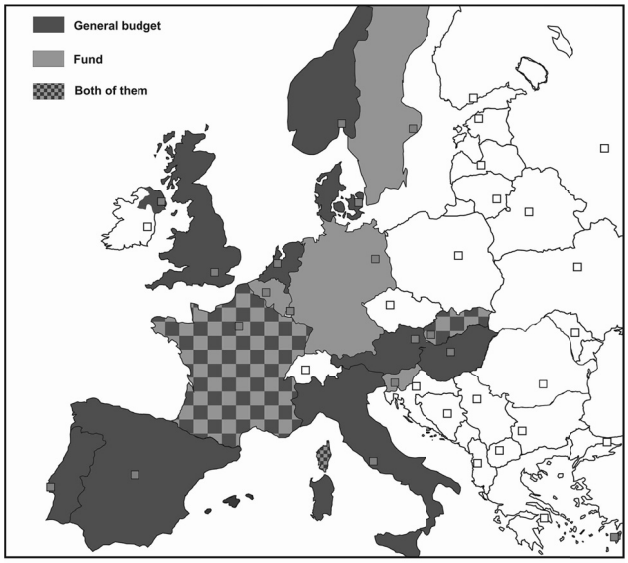
Tax rates are not uniform within the European Union (Table 2). Some states break up each category into sub-categories, based on amount, with different rates. For example, in the case of Germany there are five rate categories, not counting the tax free category.

Table 2
Bank Taxes in the European Union

Country	Name	Rate (%)
Austria	Bank levy/Stability levy	no levy< €1billion, 1billion € ≤ 0.055% ≤ 20 billion €, 20 billion € < 0.085%, The levy on derivatives is calculated as follows: 0.013% on the volume of all financial derivatives
Belgium	Bank levy	0.15%
Cyprus	Special bank tax and financial sector stability fund	For 2011 and 2012 the rate will be 0.095% on deposits, and it will not exceed 20% of each financial institution's taxable income for that period
France	Systemic Risk Bank Tax	0.25%
Germany	Restructuring Fund/Special bank levy	Relevant liabilities exemption< 300million €, 300 million € ≤ 0.02% ≤ 10 billion €, 10 <0.03% ≤ 100 billion €, 100 billion € < 0.04% ≤ 200 billion €, 200 billion € < 0.05% ≤ 300 billion €, 300 billion € < 0.06%,
Hungary	Tax on financial institutions	0.15% ≤ 50 billion HUF, 50 billion HUF< 0.53%
Sweden	Stabilization Fund/Stability Fee	0.036%
United Kingdom	Bank levy	0.075% and 0.0375% for longterm liabilities and uninsured deposits

Source: European Banking Federation database 2010

The use of inland revenues is different in the member states (Figure 5). The most common approach is to return it to the general budget. However, there are states that separate revenues into a fund to handle a possible crisis. In addition, there are countries that accept both options (IMF 2010).



Source: edited by the author, based on European Banking Federation database

Figure 5. Destination and Use of the Financial Sector Tax

In Hungary, the bank tax was introduced in 2008. This first type of tax was imposed on state-subsidized forint interest income after mortgage interest, to be paid at the rate of 5% of interest income. The second type of special tax was introduced in 2010. This is Europe's most popular approach, a balance sheet total tax imposed by banks, as previously presented in Figure 5,. It is based on the previous year's adjusted total assets. The rate is 0.15% below £ 50 billion, and 0.53% for assets above that amount, from 2011 (Table 2). In Hungary, the transaction tax being currently planned is not a Tobin tax, since it is not a tax on speculative capital transactions, but in practice a VAT-type tax. The administrative and monitoring costs will be very high compared to income it produces, so it would be much easier if they built it into the value-added tax. The proposed transaction tax would be levied only up to a certain limit. This amount is not yet final. Above this limit, tax will not be levied in order to encourage the major economic players to keep their money in Hungary. Even so, they may continue their activities in countries with lower or no transaction costs.

Outside Hungary the situation is similar. The mass introduction of transaction taxes would also mean a significant change in London and Frankfurt's international role. A significant proportion of revenues from this would flow to the two financial centers. However, those wishing to avoid such taxes could choose another financial center in the for their transactions. Improvement in the member countries's situation from the amount they received from bank taxes should reduce member states' payments for the EU.

CONCLUSION

Unfortunately, the crisis is far from over. In the road to recovery there are obstacles which create new and growing problems against us. The situation of several states in the European Union is worrying. Analysts proclaim the imminent bankruptcy of several countries, or even fear the collapse effect of countries in the region. In this stormy situation bank taxes means a way out of the crisis. In some countries they expect to improve the balance of their budgets with bank taxes, while in other countries they use the money from taxes to form bank rescue packages in case of another recession. Today, in addition to everyday people and companies, countries ranked as high risk are having difficulty getting credit. Yet, new credit is required for handling the growing indebtedness and stimulating the economy. Because bank taxes have a negative effect on lending activity they may have an effect opposite to the expectations. From the crisis taxes itselves we can not wait miracles. If in hasitant countries' governments introduce bank taxes despite of bank sector's objections, banks won't have rest. Their role in the current crisis they will bear its burden for a long time. The European Central Bank did not support the Tobin tax, and neither did the European Banking Federation. However, the EU insists on resolving the issue, which can be FFT, FAT, or VAT. A decision in this regard has not yet been made. One thing is certain, that only those types and extents of taxes should be introduced that will not hold back economic growth.

Acknowledgements

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Delicate Co-operation – Developing County

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SUMMARY

When I chose the topic of my dissertation I wanted to get involved in a research that can be useful for my home region and can use the resources of my country in the most efficient way. On first sight Hungary is obviously an agricultural country with great tillable areas so the initial "ingredients" are given. Nevertheless my mission held some surprises. First I had to focus on a special area of agribusiness sector which is quite difficult considering the numerous relations of this sector to others as bio-fuels, food processing, tourism, etc. The basic step was to examine the sector as an integral entity. These studies showed the fundamental problems of the field but did not lead to further steps. Regardless of this fact I tried to collect good practices throughout the European agricultural and food clusters. Some essential assumptions can be derived from these data for the visions and field of activity but most of them cannot tell about the formation of these clusters. Of course they had tradition in the specific area but Hungary has also (at least from our point of view) a successful history in agriculture and husbandry. This paper is an introduction to the agricultural cluster possibilities in Hungary examining the specialties in the agricultural sector, and it tries to give an idea of a combined way of creating small agribusiness clusters and bringing business opportunities into the region.
Keywords: agricultural clusters
Journal of Economic Literature (JEL) code: Q13, Q16

MOTIVATION

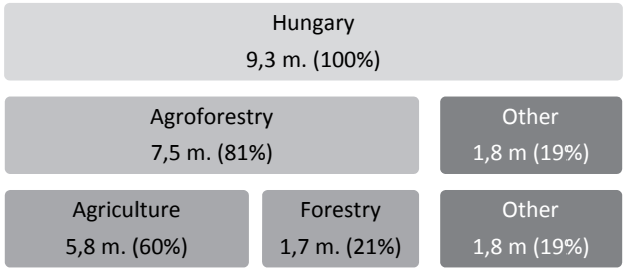
My motivation is regional development in my home region, because it is really underdeveloped in terms of GDP per capita and employment compared to the other EU-27 regions. An appropriate model is needed to enhance regional development. First I was enthusiastic about agriculture because somehow our culture is certain about the value of the "land". Somehow the usage of this renewable resource is unbound. I was wondering whether it was related to the geographical and climate circumstances but it isn't. So I have decided to examine the structure of agriculture and its contribution to GDP and employment. After having an aim to investigate on the resource side I stated the question: What if the management of agriculture is not proper? What kind of proper solution can there be for these problems?

My Master's thesis was written about Hungarian Nanotechnology and Material Science cluster, so I have chosen to work with clusters. Cluster policy is strongly related to regional development. Accordingly I collected information on the development policies and about competition including (Absolut/Relative/Comparative/Competitive advantages/Heckser-Ohlin model/Structure-Conduct-Performance Paradigm), because cluster is a kind of "co-opetitive" phenomena. After the theoretical summing-up I realized that most of the cluster based regional development programs are dealing with only high-tech branches such as the energy, automotive, or biotech industries. However, in some countries such as in Denmark, Ireland or France there are regions which have successful agricultural clusters. If they can achieve good results, maybe we can also. The structure of this paper is the following:

1. Summary of agricultural situation in Hungary
2. Introduction to network and cluster type co-operations
3. International trends for agribusiness clusters
4. A possible way to start an agricultural network in small towns in the region

STATISTICAL ANALYSIS OF THE AGRICULTURAL SECTOR

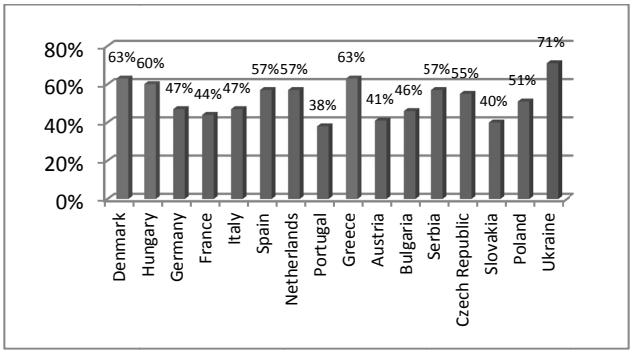
The main problem is that agricultural land is not used as it should be. According to that I collected data about the situation of agribusiness in Hungary, and then I made an analysis about it. The analyzed data was the GDP share of agriculture, employment in agriculture, sector structure. The analysis shows that the share of agricultural land is high within the country. When we think about the agro-forestry sector it represents 80% of the whole area of Hungary. Figure 1.



Source: KSH

Figure 1. Land Use in Hungary in Hectare

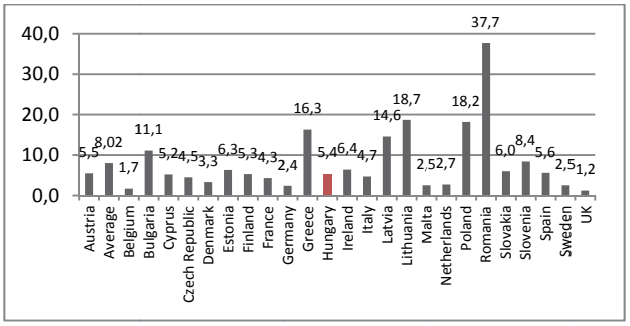
The areas used for only agricultural production is about 60%. Of the 27 countries of the European Union Hungary, Greece and Denmark has the highest rate in agricultural land use (Figure 2). Considering the fact that these countries are not the biggest of the federation it is also obvious that this is only a relatively high value, because the greater nations have more land in total. To define the opportunities for a country I think we can say that good quality soil can be a powerful resource in the future.



Source: World Bank Database

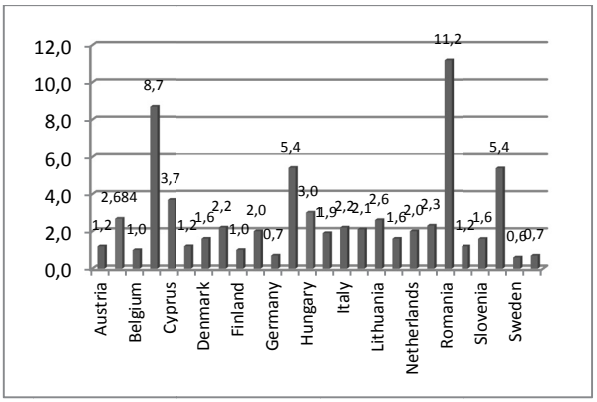
Figure 2. Agricultural Land Use in Some of the European Countries

If we are so lucky because of our land usage it must be represented in the economic indicators. The contribution of agriculture to the GDP and to employment is about or below the EU-27 average (Figure 3 and 4). This shows that owning a great resource is fairly not enough to have any kind of benefits from it. The world tendency is of course a decrease in the importance of agriculture in the developed countries.



Source: World Bank Database

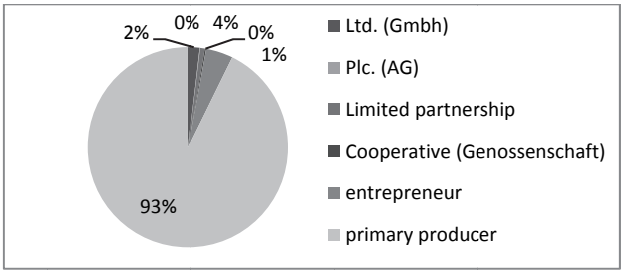
Figure 3. Employment of the Population in Agriculture



Source: World Bank Database

Figure 4. Agricultural Contribution to GDP in the EU and the Average

Another problem can be that the structure of the agricultural sector is really fragmented. Most of the actors in this sector are primary producers (Figure 5). They are the basic elements of the agricultural system. A lot of them are unable to market their own products because they are far from achieving the economies of scale. Without co-operation or great investments they will not reach this level. To see the significance of this set we must know that the primary producers create 60% of the value in the sector, but they are not working together so their effectiveness is insufficient. This could be a potential field of intervention. I believe that in network-type co-operations these producers can be supported and their products can be sold through a well managed supply chain. Later on I will refer to this kind of solution as a horizontal network where the coordinator actor manages the collection and merchandising of the products. This co-operation is also known as community farming or community supported agriculture.



Source: KSH

Figure 5. Structure of the Agricultural Sector in Hungary

This idea can lead us forward to new kind of farming ideas:

„New forms of property ownership—the land is held in common by a community through a legal trust. The trust then leases its property long-term to farmers who use the land to grow food for the community.

New forms of cooperation—a network of human relations replaces old systems of employers and employees as well as replacing the practice of pledging material security (land, buildings, etc.) to banks.

New forms of economy – (associative economy). The guiding question is not "how do we increase profits?" but rather

"what are the actual needs of the land and of the people involved in this enterprise?"(McFadden, 2004)

The primary resource soil is perfect in Hungary and the ecological attributes are also appropriate. The climate is not the problem either. International practice shows that agriculture is driven by clusters in those countries where equipment, technology, and experience and tradition are available (the Netherlands, Denmark, Austria, etc.). My region is not well supplied with these resources.

To have a short view of the causes of this situation I would like to share data in comparison to other European countries:

- Hungarian agriculture has poor supply of machinery (32% of EU average and 17-20% of the German in terms of agricultural machines)
- Low efficiency (there is 5 times greater efficiency in Germany meaning that the crop yield in agriculture (handled as one) is 20% of the German value)
- Export intensity is extremely low (The Netherlands 11.112 USD/ha , Denmark 3.279 USD/ha; Hungary 372 USD/ha) (We must consider that The Netherlands are of course a special case, but Denmark has also export intensity per hectare that is ten times higher than that of Hungary)
- Food imports grow rapidly from year to year (In connection with this tendency we must think about local sustainability which I will discuss later)
- Horizontal network establishment with the small and medium-sized enterprises (SMEs) are needed (Bottom-up initiations can be really useful in a so fragmented a sector using the co-operational workforce of the primary producers)

DRIVING FORCES OF NETWORKS

All of the cooperation among the economic actors can be defined as a kind of network. From this point of view the whole global economy is one enormous network where smaller networks are competing. There is no general agreement on the term of business network or business cluster there is no general agreement. Usually a business cluster is "a geographic concentration of interconnected businesses, suppliers, and associated institutions in a particular field. Clusters are considered to increase the productivity with which companies can compete, nationally and globally." (Porter 1990) For this article let us define a business network as a conglomeration of cooperating producers and companies where they jointly create value needed by the customers. Table 1. show the difference between a hierarchical company, a network, and the market itself :

Network type cooperation is one of the best solutions for high flexibility, real-time customer adaption, regional development, and to ensure competitiveness of the members. Network cooperation is usually more productive for the members than the separated work. The benefits usually come from the synergetic cooperation of the member.

Table 1
Comparison of Different Types of Organizations
(Based on Powell 1990)

Key features	Hierarchy	Network	Market
Co-operation	Closed	Opened in time and space	Opened in time and space
Degree of Integration	Vertical	Hybrid	Horizontal
Degree of Flexibility	Low	Medium	High
Degree of Adaption	Slow and discontinuous	Fast and continuous	Prompt and continuous
Type of production	Mass-production	Tailor-made	Non-specific (wide range)

Here I discuss about developing organizational structures and management tools. These show the different co-operational styles and the forms for companies. My goal was to have a clear view on the different terms used by the scientific literature. The literature in the different countries has use a uses a wide range of terms for network-type co-operations.

Four types of business networks are defined as:

1. Horizontal
2. Vertical
3. Hybrid
4. Occasional

In this study I only show two examples of the four categories. A horizontal network in agriculture can be co-operation between the primary producers and a coordinator. The coordinator's role is to create a link between the primary producers and the consumers. The coordinator's work is basically logistical. Beyond the collection and distribution of products the coordinator has to create an informational system which can handle the demands of the customers and can also create the supply structure of the primary producers. The products of the primary producers can vary in a wide range. There is seasonality in these products so the creation of a sustainable chain can be really difficult. This kind of cooperation is based on human relations rather than on the classical form of distribution.

A vertical network is easily defined when our integrator company is in food processing sector. In this case the integrator creates the network to ensure the continuous production and delivery to the costumers.

The German approach differs in other ways as well. The dimensions are research profile (basic or applied) and financing (public or private). It is obvious that networks and clusters are highly financed by the public actors of the economy. The Hungarian practice differs a lot from this and maybe it is also the main cause of efficiency problems. To summarize the theoretical part I should say that clusters from my point of view are "just" special networks with mixed (public and private) funding and with co-operation with researchers. (Universities, research centers, labs, etc.) From this point of view network theories can also be used for clustering for example scale-free network theory.

My basic ideas about the creation of agricultural clusters are the following:

- We must start from the lowest point of the agricultural system (Primary Producer)
- Human relations must be used to create the network
- Business network should start from the beginning, so the scale is also small
- Further development is based on the original network, but the experiences can be used to create new networks as well

To ensure that people want to join the network, I collected the potential benefits for future cluster members. Table 2 shows a mature cluster form, where all the member-types are involved in the common work.

Table 2
Individual and Common Benefits of Agricultural Clusters

Member	Benefit for member	Benefit for cluster
Seed industry	New markets, market concentration, publicity	Bargaining options for primary producers
Agri Machinery	New markets, market concentration, publicity	Bargaining options for primary producers
Primary producer	Concentrated technology and resource base, fix buyer chain	Producing market demanded high quality competitve products – Primary product comes from them
Food industry	Predictable quality and amount of products, cost reduction	Integrated chain "from farm to table", Purchase power
Wholesaler	Bargaining options (cost reduction for wholesaler)	Given purchasing chain
Logistic services	New markets	Bargaining options (cost reduction)
Universities, civil sector	Field of research, Relational capital	Knowledge transfer, Information flow from customers

EUROPEAN CLUSTER ANALYSIS

The policies are not clear so an appropriate model should be designed. I wished to investigate the European trends in clustering that is why I examined the European clusters in the agricultural (Figure 6) and food sector (Figure 7). (5 picked out of 115 from 5 different EU countries) The analysis showed the international trends, the strategy, the structure and the field of activity of these clusters. According to Eva Galvez Nogales:

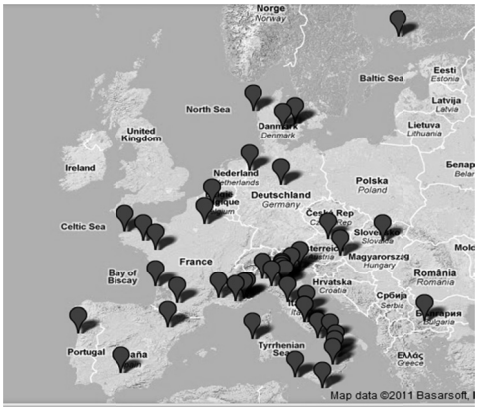
„New agriculture needs new tools to enhance its competitiveness and innovation capacity. One of these tools is the promotion of clusters."

Agricultural Cluster (AC) initiatives are handled as a key approach to help improving the agricultural sector of many countries.

Potential AC members include:

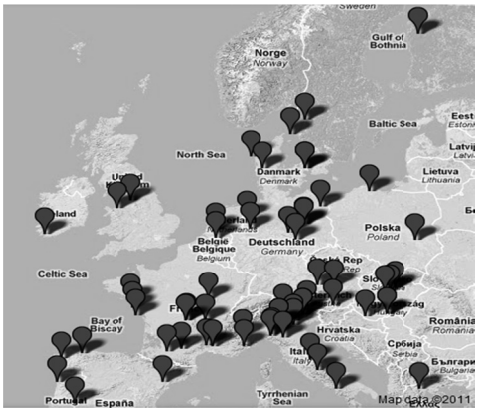
- Seed industry companies
- Agro-machinery companies
- Primary producers
- Food industry companies
- Logistic centers
- Bio-fuel companies
- Universities, R&D companies, civil sector, etc.

To see the relevance of the agro-based clusters, I would like to present some facts about the agricultural clusters in the EU-27. Currently there are three fields interesting for me in means of establishment of a cluster in Hungary. (These are: traditional agricultural sector (47 clsuters), the farming and animal husbandry sector (8 clusters), and the food sector (58 clsuters)) Naturally these three sectors overlap each other. For instance in Italy most of the clusters define themselves as food and agricultural cluster at the same time. Of course it is not easy to define separated fields but in my paper I will use those which are represented by the Cluster Observatory.(See Figures 6 and 7)



Source: European Cluster Observatory powered by Google

Figure 6. Agricultural Clusters in the EU



Source: European Cluster Observatory powered by Google

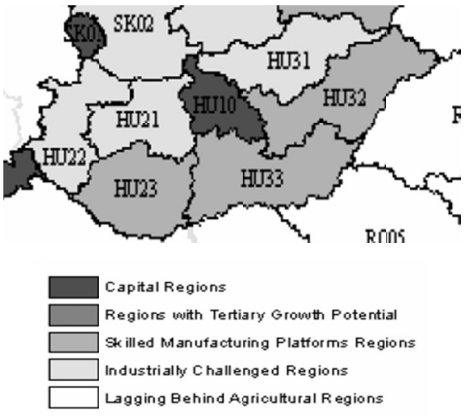
Figure 7. Food Clusters in the EU

We can see that in Europe agricultural and food clusters are common phenomena. This means that they are active forms of co-operations. Most of these clusters have historical experiences in co-operation. The clusters are usually based on local geographical possibilities and most of them would like to satisfy the needs of local inhabitants. That does not mean that they only market their products locally, but the self-sustainability of the surrounding region is an important issue when creating an agricultural network. The summary below would like to generate ideas and maybe to enhance the idea of regional development through cluster co-operations.

Table 3
Summary of Five Agribusiness Cluster Visions and Field of Activities

Austria	Denmark	Germany	France	Belgium
Production of high-quality and safe products with innovative food processing techniques	Knowledge based regional economic growth	Improve food industry	To become a world reference for innovation for the production of eco-friendly and health friendly plants	Bringing manufacturers together
Marketing of regional and organic products	Projects within food and health, production and sustainability and gastronomy and sensation	Emphasise Lower Saxony's advantages as a prime location for a sustainable and efficient market-oriented food industry	Lower consumption of inputs	Developing the spirit of innovation
Promote existing native competencies			Saving biodiversity	Improving the profitability of networks
Introduction of innovative products, new technologies and processes			Positive effect on Health and the Environment	Improving competition between companies in the food industry, and boosting business and employment in the sector
Agricultural production, food processing, trade and industry	Traditional Food	Food processing and food safety	Ornamental horticulture	Health foods/Nutritional quality (R&D)
Processing, cleaning supplies, pest control, packaging	Health and lifestyle Profile	Development of new functional foods	Fruit & vegetable growing	Industrial efficiency (production, quality, safety, competency management and training)
Manufacturers of machines and equipment for food	Functional Food	Designing and implementing optimized production lines	Seeds	Packaging (less packaging, biodegradable)
R&D, laboratories, consultants and more	Pure Pharmaceutical	Education, Qualification, professional training and further education	Medicinal and aromatic plants	Development of durable networks in the food industry (optimizing and creating sustainable and responsible management for the production chain)

This table shows that all of the chosen clusters are committed in regional development, so the idea of linking agricultural clustering with economic development is sound. Another point of interest is the emphasis on healthy, safe and functional foods. This shows us the European trend of the needs of the customers. If we would like to create an agribusiness cluster we must focus on these needs. Only high quality and healthy food is marketable. We must focus on the fact the food factory products are losing their markets and bio or free range animal husbandry are becoming more favorably viewed. Local competencies in the agricultural products must be emphasized and used as a differentiating factor. This can give the local networks a competitive advantage. The first step should be the examination of the production structure of a chosen area and then further improvements can be carried out.



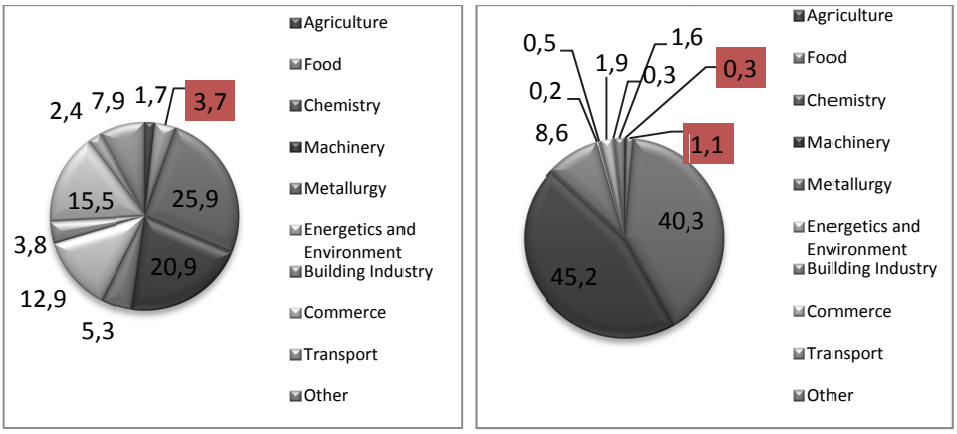
Source: Fraunhofer ISI study

Figure 8. Regional Analysis of Hungarian Regions

SUMMARY

North Hungary and my hometown Miskolc, is the regional center. Fraunhofer ISI made a regional analysis in the EU27 and examined Hungary as well. Figure 8 shows that North Hungary is an industrially challenged region, which should improve its economy. But the question is, in which area should we develop ourselves?

To answer this question I examined the different sectors of the region and more specifically the county of Borsod-Abaúj-Zemplén. Cluster co-operations are used in those sectors which are really innovative and are highly important for the region. If they are suitable only for these sectors, than regional development through agricultural cluster initiatives are not viable. From another point of view maybe self-supporting systems can also be formed as a network or cluster and not connected primarily to high-tech branches.



Source: KSH

Figure 9. Share of Revenue (Left side) and Export (Right side)

Figure 9 demonstrates that the agricultural sector makes a low contribution to the region's economic welfare in terms of revenue and export. The TOP100 companies in B-A-Z County contain only four agricultural companies, so we cannot use them as integrators for a vertical network. In this county it is also true, that the sector consists of mainly primary producers. If we want to see changes in agriculture we must start from the lowest points of co-operation. This could be the backyard of the small towns.

If we dare to dream big we have to consider the world tendencies as well. In the new century agriculture has faced the problems and opportunities of globalization. Due to this, it has to reshape itself and define new goals. The need for high-value added, safe and high-quality products is also a relevant trend in the agricultural sector. The agro-industry contains the bio-fuel industry, the food processing sector and the supporting machinery and equipment producing areas as well. Logistic processes such as packaging and retailing are also vital part of the industry. A basic logistic function can be the establishment of community farming systems in the beginning. After the early experiences we have to decide the way of expansion. We can either supply local communities or we can think about specialization for characteristic products of the different areas. In this way a small region may be able to produce original and especial products that can be marketed in the whole country. I do not wish to think on a bigger scale, because the basic steps are missing. So far.

Acknowledgement

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Transforming the Net Present Value for a Comparable One

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SUMMARY

This study examines the nature of net present value. It defines the economic content of the net present value and mathematically proves that definition is correct. This economic content inducts that the net present values are not comparable. The study systematically eliminates the distortion affects. The net present value transforms into a special kind of rate, namely, the modified difference between the factual and the required rate of return. The ranking list according to this transformed net present value corresponds to the list according to the internal rate of return. This is a new cognition and a very important correspondence.
Keywords: business economics, capital budgeting decisions, net present value, internal rate of return, ranking, economic efficiency
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INTRODUCTION, PURPOSE AND METHODS OF RESEARCH

The literature of decision preparation methods is very large and polychromatic. Even creating a comprehensive picture only about the literature of capital budgeting decisions is seems to be impassable. The discussion about the best method of capital budgeting decisions has been long and intensive. Many writings already were born in the 50s of the last century (Alchian, 1955; Solomon, 1956; Bierman – Smidt, 1957; and so on). Since then the discussion is running.

In the forefront of discussion are the net present value (NPV) and the internal rate of return (IRR) as rival methods. One of the peculiarities of the discussion is that increasingly appear more and more complicated refinements of the basic methods. One of the typical variant of this is the modified internal rate of return (MIRR). One of the academic supporters of MIRR is Kierulff. (Kireulff, 2008.)

This method was appearing in the 18th century, was newly rediscovered in the 50s of the last century, and nowadays is coming to the front as well. The MIRR is calculated as follows

$$MIRR = \sqrt[n]{\frac{\text{Future value of positive cash flows (with reinvestment rate)}}{\text{Present value of negative cash flows (with finance rate)}}} - 1,$$

where n is the number of total life-span of project. It would be difficult to define exactly the economic content of MIRR.

The net present value and the internal rate of return are two well known categories of capital budgeting decisions. During the decision preparation processes of investment projects both of them can provide useful information. The way of approaching and interpretation problems of the two methods and their calculation results as this appears in the literature are not cleared up deeply enough. Therefore a lot of inadequate explanations and contradictions occur in connection with them. For example the literature does not define exactly what does the sum of the net present value means. Despite of this in the literature exist a strong tendency – with improvements appearing time and again – emphasizes the advantages of net present value method and its better quality from the decision-making process point of view. This method is suggested for examination of an investment project's acceptability and to create a ranking list as well. In contrast, the practical experts usually prefer the internal rate of return method for both purposes in an important part of developed countries. For example Arnold - Hope (1990: 262-263) cite two surveys done in the 70s and 80s of the last century demonstrating that the largest British companies (that are otherwise able to pay the best experts, or to train specialists) definitely rank the internal rate of return higher than the net present value in practice. After this review they mention that lots of American surveys prove that the practice prefers the internal rate of return in the USA as well.

The knowledge of the content of the information used for decision making can provide practical aspects of choosing between the two methods. Reviewing the question of how the methodological process and the results of this match the logic of the management practice and the thinking routine of the decision makers is reasonable as well.

Business economics, among others, has the function of providing methodological aid, methodologically-founded ideas for economists in practice. Probably based on this function, the business economics literature often mentions the importance of the professional clarity and practical implications of the suggested methodology (e.g. Garrison, 1988: 712; Arnold - Hope, 1990: 260; H. Schmalen, 2002: 602-605). That is, the majority of the company experts can only apply the

methodology correctly if they can fit methods to their way of thinking, if they can somehow connect them to the logic of the economic process.

This study intends to clarify some basic issues of the net present value. The main questions of the research are: applicability area of the method; economic content of the index number received based on the calculation; comparability of the net present values of different investment projects; purifying this index number from distorting effects. The internal rate of return is regularly used in the study to make the analysis and findings unambiguous.

The main methods of the research are the logical analysis and the use of understandable, relatively not difficult mathematical models. The proving ways of findings are logical and mathematical processes as well.

THE FUNDAMENTAL QUESTIONS OF NET PRESENT VALUE AND INTERNAL RATE OF RETURN METHODS

The methodologies of both procedures are widely known in the profession; therefore, this study does not explain the methodologies in detail. This section mainly serves as starting point, and to draw attention to some general issues.

The Required Rate of Return

Three decades ago the required rate of return was interpreted in the business economics literature as the interest rate, or the company's average rate of capital profitability. For example Clifton and Fyffe (1981) also mention these two requirements in their book: "…in the method of the net present value the required rate of return is the rate of return which is analogue with interest rate", as written on page 164. Later this content was slightly modified: "The required rate can be the interest rate or the effective rate of the company's own invested capital" (p. 329). In 90-th years of the last century in business economics became obvious that determination of the required rate of return is the same as the opportunity cost interpreted for capital and defined by microeconomics. Applying this approach became general in the business economics literature. Partly parallel with this process, the conception appeared in the financial studies that the required rate of return is not equal to both main elements of capital. The cost of capital applied to the equity and that applied to the debt cannot be the same. By this conception concerning the equity, besides the price of using the capital, the commodity market risk-premium requirements also must be returned; concerning the debt, however, that is enough if the interest is repaid. The required rate of return concerning the equity is typically defined as if this were independent from the level of indebtedness.

The most characteristic methodological solution for this is the weighted average cost of capital. Here the required yield rate from equity and the interest rate are averaged according to the weight rate of equity and debt. This solution seems to be the growing trend; however, the conception is not scientifically clarified. In the literature lots of critiques count with weighted average cost of capital as well. (E.g. Luehrman, 2007.) These critiques are very important, but always are not about the matter of the principle of a required yield rate.

Net Present Value Method

In theory, the net present value method is calculated so that the discounted sum of all cash outflows is subtracted from the discounted sum of all cash inflows that are associated with an investment project. The calculation can also be made with the time series of the difference of cash inflows and outflows. The annual differences are discounted and summarized. In business practice the logic of the calculation can be transformed: subtraction of the discounted sum of the investment expenses from the discounted sum of the difference of revenues and out-of-pocket costs. The content of the difference of revenues and out-of-pocket costs is very similar to the earnings before interest, taxes, depreciation, and amortization. According to this method the investment project is acceptable if the net present value is not less than zero.

Internal Rate of Return Method

The internal rate of return was earlier known in business economics as the time-adjusted rate of return (Garrison, 1988: 657). Calculation of the internal rate of return means searching for the rate of return which makes the cash inflow line and the outflow line equal to each other. In essence, that is the rate at which the net present value would be zero. In case of investment projects that can have only one internal rate of return, the internal rate of return shows the factual time-adjusted profitability rate of the investment. The acceptability criteria of the project are decided by how large factual profitability rate is generated compared to the required rate of return. The difference shows how large surplus rates (or lack of rates) are generated compared to the required rate of return. Generally, this difference needs not be defined numerically; this becomes visible when writing the two rates next to each other. Where the two rates are equal, that still means that economic efficiency and required profitability are exactly achieved.

Applicability

In the case of investment projects or activities where the yield effect of the decision can be calculated numerically in a relatively obvious way, the main question is whether the generated yields are enough to meet the required rate of return. The relatively correct solution of the choice between variants excluding each other includes comparison of return options as well.

A wide range of investment projects have no direct yield effect or this cannot be measured. Every investment item concerning an office building and equipment of administration can be classified as such. The yields of the individual elements

of the technological chain of the production process, or the yield of a given machine or equipment in itself cannot be defined either. For example, in the case of a power plant the cash flows arising from a single turbine cannot be calculated.

At this question the economic survey sets as its goal to minimize the time-adjusted average annual repayment requirements connected to the given function performance. This type of decisions can be called as function-oriented decisions. The significant appearance in business economics of function-oriented capital budgeting decision methods has a history longer than half a century. In the function-oriented capital budgeting decisions the time-adjusted average amount of annual repayment requirement gives methodologically correct grounds for comparison.

Methodologically, measurable yield effect projects can also be divided into two groups. The business economics literature differentiates between investment projects with orthodox and unorthodox cash flow patterns (e.g. Arnold – Hope, 1990: 262-263). The name can be different; for example: typical and non-typical, conventional and non-conventional, orthodox and unorthodox cash flows. The financial literature usually does not handle this differentiation. (Using this differentiation is not a general practice in business economics literature, either.)

A main characteristic of the orthodox cash flow patterns is that the time series of the difference between cash inflows and cash outflows starts with one or more negative sign amounts, and from a point in time where this difference turns into positive first, this positive sign does not change. So no other year will be in the duration of the project when the amount of cash outflow will exceed cash inflow. Thus the cash flow series starts out with a negative sign member or members, and sign change occurs only once.

In the case of orthodox cash flow pattern projects, the project itself creates and produces all the yield elements appearing in the examination. So the examination of economic efficiency can follow the logical question arising before decision making, that yields of investments in connection with the project would be enough to fulfill the return requirements. Investment projects with orthodox cash flow patterns can have only one internal rate of return. This statement results from a theorem of Rene Descartes (French scholar and philosopher 1596-1650). From this as follows the time series of the difference of cash inflows and outflows may have as many internal rate of return, as the number of sign changes. The basic relationship can be considered as generally known our days.

Having more than one internal rate of return is the characteristic of unorthodox cash flow pattern projects only. Because of the financial literature usually does not handle the distinction of orthodox and unorthodox cash flow patterns often deny expedience of internal rate of return (e.g. Brealy - Myers, 1992: 76-82), and often says that the internal rate of return is without meaning (Hill, 2008: 36). These statements are valid only the case of unorthodox cash flow patterns.

Investments belonging to the group of unorthodox cash flow pattern projects are those in which sign changes occur at least twice in the cash flow series. (For example the outflow is larger than the inflow in case of periodical renovation, a partial rebuilding of traditional iron furnaces, or in the period of remediation works after the closing of open-pit mines.) A main characteristic of the majority of unorthodox cash flow pattern projects is that a part or the whole payback, once disengaged from the project, must later be reinvested into the same project. This reinvesting matter for the economic efficiency of the project how large yields can be achieved with amounts of money temporarily utilized in other areas or projects. (For a detailed explanation and demonstration with an example, see Illés, 2007.) Classical methods automatically assume that amounts temporarily invested result in yield effects according to required rate of return or the internal rate of return. When they are used, the yield effect inside the project becomes inextricably mixed up with the yield effect of amounts temporarily invested being assumed automatically by the method. As the result of all this, neither the net present value, nor the internal rate of return of unorthodox cash flow pattern projects provide adequate information for decision making. This relationship can be considered generally known in connection with the internal rate of return. However, in contrast with the suggestions in the literature even the net present value cannot be considered to be clear information in case of unorthodox cash flow pattern projects.

Thesis 1 Net present value and internal rate of return can only provide well interpreted, clear information in the case of investment projects with orthodox cash flow patterns.

THE ECONOMIC EFFICIENCY BY FOLLOWING UP THE REPAYMENT PROCESS, AND THE ECONOMIC CONTENT OF NET PRESENT VALUE

The economic efficiency of investments can be examined correctly by several methods, not only by the published ones. Such no familiar method can be the method based on following up the repayment process. The essence of this method is calculating for each given year until the end of the project the difference between the sum of cost of capital not repaid and the yield. At the end of the process the output is the sum of factual extra yield or lack of that compared to the required rate of return. The last step could lead to the net present value if this sum is discounted back to the zero point of duration (Illés, 1997).

The method itself involves significantly more steps than the net present value method and requires more background calculations. From this regard, this calculation process cannot compete with the net present value method. However, the extended information background gives the opportunity to survey and to follow the repayment process throughout time. Following up the repayment process can serve as a contemplation support for a company and can be stimulating, since the strategic visions and project performance can be followed up continuously throughout the life of the project.

This method is based on the fact that through discounting back the extra yield (or lack of that) generated by the end of the duration of the project leads to the net present value. According

to this calculation the economic content of the net present value can be clearly defined. The net present value is the discounted sum of the surplus yield (or lack of that) generated above the yield requirement according to the required rate of return (Illés, 1990: 103-105). The following examination shows the deduction through a simple example, and then this context proves generally valid relationship applying to orthodox cash flow pattern projects.

Demonstrating the Follow-up of the Repayment Process Through a Simple Example

The cash flow series are calculated as the difference between the annual cash inflows and cash outflows of an investment project (in order of years; generated at the end of each year) as follows: - units 820; + units 420; + units 440 and + units 194. The required rate of return is 12%.

NPV = - 820 + 0.89286 × 420 + 0.79719 × 440 + 0.71178 × 194 =43.8 units.

The examined project meets the repayment requirement; besides surplus yield is generated with a present value of 43.8 units. The development of the repayment requirements through time and the repayment process itself is shown below (amounts counted in units).

The steps of calculation process:

At the end of Year 1: - 820× 1.12+420 = - 498.4

At the end of Year 2: - 498.4×1.12+440 = -118.2

At the end of Year 3: -118.2× 1.12 +194 = 61.6

NPV= 61.6× 0.71178= 43.8

Explanation of the calculation:

From all the repayment requirements occurring 420 units were repaid at the end of the first year. At that time remains 498.4 units to return. This 498.4 units and the required yield generated because this amount continuing to be locked up, that is 558.2 must be returned. At the end of the second year 440 units were repaid from the amount of repayment requirement. 118.2 units were not repaid. At the end of the third year a yield of 194 units are generated. This exceeds the 132.4 units required repayment, and leaves 61.6 units. This is the surplus compared to the required repayment at the end of the third year.

The surplus yield (61.6 units) generated at the end of the third year is discounted back to time zero and equals to 43.8 units, which is exactly the same amount as the amount of the net present value calculated above.

The relationship introduced based on the example can be proved to be generally valid for all orthodox cash flow pattern projects.

General Demonstration

Starting point:

The net present value calculation variant applied to orthodox cash flow pattern projects.

$$NPV = -E_0 + \sum_{t=1}^{n} H_t \frac{1}{(1+i)^t}, \qquad (1)$$

where

E_0 = Initial investment. The investment sum occurring in the zero point of time, and investment amounts occurring earlier added up with required rate of return.

t = Serial number of years (t > 0).

H_t = Difference between cash inflows and cash outflows in year t, where $H_t > 0$ for orthodox cash flow pattern projects.

n = Duration of the project, where the time of investment realization does not constitute part of the duration.

i = Required rate of return.

From the demonstration point of view, the content relationship that further investment-like expenses for maintaining the working ability of a given fixed asset or to restore the asset can occur during the working period of the investment project bears no relevance in this relationship. The demonstration consists of two stages and several steps at each stage.

Stage one:

The first stage of the demonstration describes the repayment process of the cost of capital. The cost of capital is the sum of the face value repayment requirement of the capital and its required yield according to the required rate of return. The repayment process describes the numerical definition of the cost of capital not yet repaid at individual points in time and the comparison to the concerning annual yield.

The amount of the cost of capital not yet repaid

at the end of Year 1: $-E_0(1+i)+H_1$

at the end of Year 2: $\left[-E_0(1+i)+H_1\right](1+i)+H_2$

at the end of Year 3:

$$\left\{\left[-E_0(1+i)+H_1\right](1+i)+H_2\right\}(1+i)+H_3$$

and so on.

Assuming that the status of the repayment at the end of Year 3 already shows the pattern of the development of the process through time, simplification is introduced to the above inscription in parentheses.

Eliminating the curly brackets:

$$\left[-E_0(1+i)+H_1\right](1+i)^2+H_2(1+i)+H_3$$

Eliminating the square brackets:

$$-E_0(1+i)^3+H_1(1+i)^2+H_2(1+i)+H_3$$

The numerical definition of the repayment status inscribed for the end of Year 3 can be applied further for the full duration of the investment. Formula (2) defines numerically the amount of the surplus repayment or lack of that generated at the end of the duration of the investment project.

$$-E_0(1+i)^n+H_1(1+i)^{n-1}+H_2(1+i)^{n-2}+\ldots+H_{n-1}(1+i)+H_n \qquad (2)$$

Stage two of the demonstration:

In this stage the end result of the repayment process is transformed into present value form. The present value of the amount of the surplus repayment or lack of that is calculated for the end of the duration in three steps.

Step one: sign up the discounting formula.

$$\left[-E_0(1+i)^n+H_1(1+i)^{n-1}+H_2(1+i)^{n-2}+\ldots+H_{n-1}(1+i)+H_n\right]\frac{1}{(1+i)^n} \qquad (3)$$

Step two: perform the discounting process.

$$-E_0+H_1\frac{1}{(1+i)}+H_2\frac{1}{(1+i)^2}+\ldots H_{n-1}\frac{1}{(1+i)^{n-1}}+H_n\frac{1}{(1+i)^n} \qquad (4)$$

Step three: simplification of the (4) formula.

$$- E_0 + \sum_{t=1}^{n} H_t \frac{1}{(1+i)^t} \tag{5}$$

At step three the net present value calculation formula inscribed as the starting point (1) is arrived. The proof is complete.

The deduction proved that in the case of orthodox cash flow pattern projects the net present value is the discounted amount of the surplus yield (or lack of that) generated above the yield requirement according to the discount rate. The existence of the surplus yield and its amount depends on the required rate of return, too.

In case of generating no lack of yield at the end of the period, the project is economically efficient and acceptable. The advantage of the method is that the process of the calculation logically follows the repayment process. The information content of the index number can be quite transparent from a practical point of view, in contrast with the net present value which is sometimes mystifying. Through discounting the face value of the surplus yield (or lack of that), the net present value can also be defined numerically.

Thesis 2 In the case of investment projects with orthodox cash flow patterns the net present value shows the sum of the surplus yield above the required one (or lack of that), discounted for present value. (This content is proved mathematically.)

Thesis 3 In the case of investment projects with orthodox cash flow patterns the sum of the surplus yield (or lack of that) calculated for the closing date of the project can also be suggested for practical experts as a correct economic index number. The advantage of the method is that the calculation process logically follows the repayment process. The information content of this index number is easily conceivable from an economic point of view; by discounting this index number the net present value is reached.

COMPARABILITY OF NET PRESENT VALUES

The net present value has a general content contradiction. This contradiction results from the fact that the method only handles the all-time extent of the capital investment correctly in the matter of the required rate of return. The surpluses (or lacks) of yield generated above the requirements are simply discounted and summarized. From the viewpoint of the method the sum of the capital and its presence in the project concerning the surpluses and the lifetime of the project are irrelevant. (The deduction above clearly proves this.)

Following from all these, the net present values of different investment projects are not suitable for comparing the economic efficiency of the projects. The net present value contains distortions regarding three relationships.

Distortion Effects

1. The initial investment requirements of the project can be different. Otherwise assuming unchanged conditions, the initial investment of the lesser amount is the more advantageous.
2. The duration of the investment project can be different. Otherwise assuming unchanged conditions, shorter duration is more advantageous. The re-investment of capital can happen earlier and the new yields are thus generated earlier; in addition in the case of the other conditions being the same the project bears smaller risk behind the repayment process of shorter period.
3. The rapidity of capital payback can be different. Otherwise assuming unchanged conditions, faster payback is more advantageous. In the case of slower payback, for example those that are concentrated at the end of the lifetime of the project, the reinvestment can commence later, affecting a significant part of the invested capital.

The distortion affects or either of them are performed a lots of publications (for example Keane, 1975, Van Horne – Vachowicz, 2008). Although the demonstration of the above three distortion effects makes clear that investment projects are generally not comparable based on their net present values, the literature is far from being homogeneous in this question. Some of the sources suggest the comparison based on net present value without any restraints. For example „Mutually exclusive projects: Accept the project with the highest positive NPV." (Brigham – Houston, 2009:340.) Furthermore „Projects … can also be ranked according to their NPV." (Hill, 2008:36.) In fact, the Fisher's intersection was borne on the basis of comparability of net present values as well. This intersection is the rate which brings the NPVs of two investments into equality (Fisher, 1930). Fisher's intersection is often referred nowadays as well (Baker - Powell, 2005, Hill, 2008, Van Horne – Vachowicz, 2008. and so on).

Possibilities for Eliminating the Distortion Effects

There are literary sources for suggestion of certain corrections to eliminate of the distortion effects. These suggestions, however, only correct the first or the second out of the three distortion effects demonstrated above. As I see, there is not the pursuit for a complex correction.

The elimination of the distortion affects is solvable in many ways. In this study the start-up basis of the applied cleaning method is the one-problem-oriented proposals of literature. (Supposedly this way of solution will give a hand to survey and apprehend the relationships.)

Some sources suggest dividing the net present value by the initial investment [$\frac{NPV}{E_0}$] or the profitability index. [$1 + \frac{NPV}{E_0}$] For example Brealey & Myers (1992:115.).

This index number or the profitability index only eliminates the distortion effect of differences in initial investments. The distortion effects of the differences in duration and rapidity of payback still remain.

The suggestion of the time-adjusted average of the net present value often appears – mainly in the financial literature – in the last two decade. (E.g. Helfert, 1991: 250-251, Baker - Powell, 2005: 262, or Lee, A. C. - Lee, J. C. - Lee, C. F. 2009: 473-475.) Defining the average is calculated in the way that the net present value is divided by the annuity factor, which in business economics means multiplying by the loan repayment factor. (Business economics always used the formula of loan repayment factor. The financial literature uses the annuity factor, which is the reciprocal of the previous formula.) The formula of this time-adjusted average is: $q_n\ NPV$ (where q_n is the loan repayment factor, within the required rate of return and lifetime of the project). This solution only eliminates the distortion effect of the differences in duration; the distortion effects in the differences between capital requirements and rapidity of payback remain.

Another step could be – although I did not find any suggestions for this in the literature – merging of the two methods demonstrated above, that is, the numerical definition of the time-adjusted average of the net present value divided by initial investment, that is $q_n \frac{NPV}{E_0}$.

After eliminating the distortion effects of the initial investment and the duration at the same time, the distortion effect would be only in the rapidity of capital payback remaining in the index number. (Demonstration of this with an example can be found at the end of this study.)

This way, however, the transformed net present value is getting closer to the main information used during application of the internal rate of return method, that is, how much the factual profitability rate differs compared to the required one. The methodological elaboration of calculating the coefficient which can measure payback rapidity seems to be very complicated. I believe that the calculation of this coefficient is not necessary, but very important to know its essence. Fundamental cases:

- Payback by years is uniform. Than the coefficient is 1.
- Payback is quickly. The bigger cash flows arise at the beginning of the life-span. In this case the coefficient is bigger, than 1.
- Payback is slow. The bigger cash flows arise at the end of the life-span. In this case the coefficient is lesser, than 1.

When the third problem, the distortion effect in the difference between the rapidity of payback, is successfully eliminated, the transformed index number arrives at a corrected difference between the internal rate of return and the required rate of return.

The Cleansed Formula

The transformed net present value is a special rate-difference. This content is followed from exhibited calculating procedure. The rate-character has appeared when the net present value was divided by initial investment. The matter of rate-difference is following from that, the net present value is a surplus yield (or lack of this). Multiplying this surplus yield rate with the loan repayment factor it transforms the time-adjusted average of net present value rate. The last step is the correction with the coefficient of payback rapidity. This rate will be the modified difference between the internal rate of return and the required rate of return.

This way cannot lead to the accurate difference of two rates. This is coming from the special cleaning method in which are mixing the elements of static and dynamic procedures for capital budgeting. The formula as follows

$$q_n \frac{NPV}{E_0}\ \lambda = (r\ -\ i)\varepsilon\,, \qquad (6)$$

where, besides the above,

λ = Coefficient of payback rapidity,

r = Internal rate of return,

ε = Modifying factor to the difference of internal rate of return and required rate of return.

Thesis 4 From the point of view of the comparability of decision variants, the net present value contains distortions in three relationships. These are the initial investment, the duration and the rapidity of capital payback. By systematically eliminating these distortions the net present value transforms into a special kind of rate, namely, the modified difference between the factual and the required rate of return.

Reduction of the Formula in the Case of Existing Annuity Terms

According to the relationship demonstrated above, the systematic elimination of distortion effects in the net present value leads to the corrected difference between the factual and the required rate of return. This is clear and understandable when the terms of annuity method exists.

Two conditions should be met to apply the annuity method:

1. The investment should be processed in a very short time (this must be an investment point).
2. The difference between revenues and out-of-pocket costs should be the same every year, so the generated cash flow size must be a constant amount per year.

In this case the net present value method can become simpler (as this well known):

$$NPV = -\ E + \frac{h}{q_n}$$

where

E = Sum of the investment where the investment process is very short. That is, $E_0 = E$.

h_t = Difference of revenues and out-of-pocket costs in year t.

h = Constant difference of revenues and out-of-pocket costs. That is, $h_t = h$, if $t > 0$.

With these two conditions the internal rate of return method is simpler as well.

$$0 = -\ E + \frac{h}{q_{techn}} \qquad \text{and} \qquad q_{techn} = \frac{h}{E}$$

where qtechn is a technical loan repayment factor, using the factual profitability rate (internal rate of return) "r" instead of required rate of return "i".

Starting formula (6):

$$q_n \frac{NPV}{E_0} \lambda = (r - i)\varepsilon$$

If the yearly payback is constant (ht = h; and E0 = E as was discussed before), then the coefficient of payback rapidity is 1 (that is $\lambda = 1$). According to these

$$q_n \frac{NPV}{E} = (r - i)\varepsilon, \quad \mid E_0 = E \quad \text{and} \quad h_t = h \qquad (7)$$

After rearranging equation (7):

$$NPV = \frac{(r-i)\varepsilon E}{q_n} \quad \mid E_0 = E \text{ and } h_t = h \qquad (8)$$

That is,

$$-E + \frac{h}{q_n} = \frac{(r-i)\varepsilon E}{q_n} \quad \mid E_0 = E \text{ and } h_t = h \qquad (9)$$

and

$$\frac{h}{E} - q_n = (r - i)\varepsilon \quad \mid E_0 = E \text{ and } h_t = h \qquad (10)$$

As noted above $\frac{h}{E} = q_{techn}$, so

$$q_{tech} - q_n = (r - i)\varepsilon \quad \mid E_0 = E \text{ and } h_t = h \qquad (11)$$

or

$$\frac{r(1+r)^n}{(1+r)^n - 1} - \frac{i(1+i)^n}{(1+i)^n - 1} = (r-i)\varepsilon \quad \mid E_0 = E \text{ and } h_t = h$$

In this special case the transformed net present value is the difference between the technical and the true loan repayment factor as shown in formula (11). This difference by absolute value is smaller than the difference of the factual and required rates of return because of the influence of specific construction of the net present value divided by initial investment.

In the case of existing annuity terms the modifying factor ε can count as well.

$$\varepsilon = \frac{q_{tech} - q_n}{r - i} \quad \mid E_0 = E \text{ and } h_t = h \qquad (12)$$

For example if the lifetime of the project is 10 years, the internal rate of return is 20% and the required rate of return is 15%, then in the case of existing annuity terms the transformed net present value from formula (11) is: (0.2 – 0.15) ε = 0.23852 – 0.19925 = 0.03927. The 3.9 percentage point is smaller than the percentage point of 5, as the difference of the factual and required rates of return is. The numerical value of ε in this case is 0.7854.

Thesis 5 In the case of existing annuity terms the net present value transformed to comparable is the difference between the technical and the true loan repayment factor, where the technical repayment factor is the constant difference of revenues and out-of-pocket costs divided by investment.

RANKING OF INVESTMENT PROJECTS ACCORDING TO ECONOMIC EFFECTIVENESS

In the case of investment projects with orthodox cash flow patterns the net present value and the internal rate of return methods lead to the same result when selecting the acceptable variants, in spite of the fact that their information content differs. However, the ranking list according to the two methods can differ.

The ranking list according to comparable (transformed) net present value corresponds to the list according to the internal rate of return. Consequently the highest profitability project according to the internal rate of return is also on the first place in the ranking list according to the net present value cleared of main distortion effects. Ranking by internal rate of return is in conformity of operational principle of the economy, by which the capital is wandering to the possibilities of highest profitability (by the given risk).

The everlasting debated question is which one is the better from two economically efficient investment variants that exclude each other. The investment of course yields more profit in the project variant of larger profitability, but that is not sure the one with the larger profitability is to be chosen.

The initial investment, the duration and the rapidity of payback should also be taken into consideration, namely how much investment, how long time and with what rapidity the relative large profitability takes. That can happen, especially when the less investment, shorter life-span or quicker payback refers to modest yield sum opportunities, that the somewhat less profitable, but bigger investment, longer duration, slowly payback variant (compared to the largest profitability variant) becomes more advantageous. (This can be seen at first sight; for example, that – with otherwise unchanged conditions – a 50 million unites or 20-year duration project of 24% profitability is more advantageous than one 5 million unites or lasting for 2 years having 25% profitability.)

The relatively higher sum of net present value or relatively high rate of surplus yield by the net present value divided by initial investment can refer to the latter advantages as well.

So the solution is: setting up a three-index number for ranking where the internal rate of return is the primary and the sum of the net present value with the net present value divided by initial investment appear as secondary ranking indicators. If all of the three ranking indicators show the same ranking list, then this will be at the same time the practical ranking list as well. If, however, the three indicators lead to different ranking lists, then further analysis is needed.

To continue the setting up of the ranking list, that is practical to determine the critical profitability level (critical internal rate of return) of the difference of investment sum, or reinvestment amounts. This critical profitability level should be reached at the difference of investment sum or reinvested amounts of the less sum, shorter duration or quicker payback project to make the internal rates of return of the two projects the same. Only with this critical profitability rate would both options be considered equally favorable. If larger profitability chances than the critical profitability rate can be foreseen, then that is favorable to choose the project with higher internal rate of return; otherwise that is favorable to choose lower capital profitability rate project (Illés, 1997: 131-135).

EXAMPLE OF A DIFFERENT PAYBACK RAPIDITY AND RANKING

The example below demonstrates the relationships discussed above using real numbers. For the sake of this purpose the example disregards the fact that the occurrence of the problem with such clarity is not probable in practice.

A company has an investment option of 350 units. The practical experts worked out two investment project variants. The market risk of the two variants is the same, so a uniform 12% required rate of return was assigned to each of them. Table 1 summarizes the main data of the individual variants.

Table 1
Main Data of the Two Project Variants in the Example

(in units)

Year	Project variant 1				Project variant 2			
	Amount of investment	Revenues	Out-of-pocket costs	Yields	Amount of investment	Revenues	Out-of-pocket costs	Yields
0	350	0	0	0	350	0	0	0
1		408	403	5		867	467	400
2		412	407	5		661	656	5
3		747	247	500		523	518.49	4.51

Decision preparation information:

1. The net present value of the two variants is the same (where var. = variant).
   $NPV_{(var.1)}$ = -350 + 0.89286 ×5 + 0.79719×5 + 0.71178×500 = 14.3
   $NPV_{(var.2)}$ = -350 +0.89286 ×400 +0.79719×5 + 0.71178×4.51 = 14.3
2. Since the net present value and the invested amount of the two projects are the same, the net present value divided by initial investment and the profitability index (PI) will be the same as well.
   $$\frac{NPV}{E}=\frac{14.3}{350}=0.041; \qquad PI=\frac{364.3}{350}=1.041$$
3. The internal rate of return of the two variants shows a significant difference:
   Internal rate of return $_{(var.1)}$ ~ 13.5%.
   Internal rate of return $_{(var.2)}$ ~ 16.5%.
   The factual profitability shows a significant difference, which is approximately 3 percentage points. The reason: the rapidity of payback is significantly higher in the case of the second variant; consequently the average locked-up capital is smaller. Most of the invested amount's nominal value is repaid at the end of year one.
4. For the critical profitability rate of the reinvestment amounts freed in the second project (with the intention to estimate roughly) that is practical to examine with what profitability the 400 units freed at the end of first year should be invested to ensure a net yield of 500 units at the end of year three.
   $400\,(1+r)^2=500$; $(1+r)^2=1.25$;
   $1+r=1.118$; $r=0.118$, that is 11.8%
   The 11.8% does not reach the required rate of return, so by a rough estimate the second variant is the better one.
   For more exact estimates that is practical to consider each of the annual differences in yield:
   $395(1+r)^2=495.488$; $(1+r)^2=1.2544$;
   $1+r=1.12$; $r=0.12$, that is 12%
   According to the more accurate calculations, choosing the second variant is more practical in the case of a reinvestment that exceeds the required rate of return by any small amount. (However considering the smaller risk behind the shorter repayment period, then definitely the second variant is better.)
   Should the required rate of return be raised to 15% due to an unexpectedly occurring higher commodity market risk, then the first variant would drop out of the group of acceptable variants. Its internal rate of return would not reach the required rate of return and its net present value also would turn negative.
   NPV(var.1) = -350 + 0.86957× 5 + 0.75614× 5 + 0.65752×500 = -13.
   NPV(var.2) =-350 +0.86957×400 + 0.75614× 5 + 0.65752×4.512 = 4.6
   In the case of a 15% required rate of return, the discounted amount of the lack of yield is 13.1 units for the first variant, while the discounted amount of the surplus yield is 4.6 units for the second variant.
5. With the 12 % required rate of return the dynamic average of the net present value divided by initial investment will not show a ranking list. Considering that the investment amount, net present value and duration of the two projects are the same, the resulting dynamic average will also be the same.
   $$q\frac{NPV}{E}=0.41635\times 0.04097=0.017$$

The time adjusted average of net present value divided by initial investment is 1.7 % in the case of both projects. That is because of the fact that this step cannot take into consideration the rapidity of payback. By handling rapidity of payback the annual rate of the net present value would be different. The payback rapidity indexes are: less than 1 of the first variant and higher than 1 of the second variant. So the net present values cleared of main distortion effects are 1.5 ε_1 percentage points and 4.5 ε_2 percentage points, respectively.

The example shows that the numerical definition of the time adjusted average of the net present value divided by initial investment leads to information that can be interpreted in practice as well (the researchers did not combine the two steps so far). In addition, by systematically eliminating the effects of the net present value distorting comparison possibilities, the corrected index number get closer and closer to the difference between the internal rate of return and the required rate of return. These will not be completely equal because of the applied examination terms.

Acknowledgement

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Analyzing the Labour Market Situation in the Central and Eastern European Countries – Improvement or Decline?

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SUMMARY

This paper presents the labour market situation, in particular the employment and unemployment trends in the Central and Eastern European (CEE) countries that joined the European Union in 2004 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia). A general feature of the ex-socialist countries of the region is that they inherited a relatively developed non-market sector from the era of state-owned economy. My hypothesis states that the labour market position of the CEE transitional countries differs in terms of employment rates. According to my hypothesis, the economic revitalizing effects of the employment policy cannot be experienced so strongly in the underdeveloped regions and only temporary results can be achieved in the social area, because of the short-term focus. Economic and social reforms in the Central-Eastern European economies have induced important output changes since 1989 (the end of the socialist regime). It is often said that open unemployment was unknown in socialism and the employment rate was very high; each worker considered his or her job to be secure. Rather, an inverse disequilibrium was typical. The socialist economy resulted in chronic shortages, one manifestation of which was – at least in the relatively more developed and industrialised CEE countries – chronic unemployment. This paper focuses on the major forms of labour market indicators and examines their significance in the Central and Eastern European transitional countries.
The three research questions the paper attempts to answer are:
Is there divergence or convergence between the CEE countries in the prevalence of the labour market situation?
What are the differences between the major labour trends in these countries?
Is Okun's law valid in these countries?
Keywords: transition economies, labour market, world economic crisis, Okun's law
Journal of Economic Literature (JEL) code: J21, R23

INTRODUCTION

I have chosen as the focus of my research the analysis of the labour market situation, particularly in transition economies, over the last twenty years and the world economic crisis (from 2008) because it has been more and more used in the economy and can be considered a current question. A general feature of the ex-socialist countries of the Central and Eastern European (CEE) (the group of these countries is called, somewhat imprecisely in geographical terms) region is that they inherited a relatively developed non-market sector from the era of state-owned economy. This paper focuses on the actual situation of labour market relations and examines their significance in the CEE countries. The three research questions the article attempts to answer are: (1) Is there divergence or convergence between the CEE countries' labour market situation? (2) What are the differences between employment rates in the CEE countries according to the statistical data since 2004? (3) How has the unemployment rate changed due to the world economic crisis?

FEATURES OF THE TRANSITION ECONOMIES

"A transition economy is an economy in the 21st century which is changing from a centrally planned economy to a free market economy. Transition economies undergo economic liberalization, where market forces set prices rather than a central planning organization and trade barriers are removed, privatization of government-owned enterprises and resources, and the creation of a financial sector to facilitate the movement of private capital." (www.economies-dictionary.com).

The countries of the world can be classified according to various aspects; however, the categories set up by the UN are the best known: landlocked developing countries, least developed countries, heavily indebted poor countries, newly industrialized economies, emerging economies, major petroleum exporters, major exporters of manufactured goods, developed economies, economies in transition, and developing

economies. The current classification of CEE countries is not evident: some refer to them as countries of transitional economy while the UN considers them to be developed.

The term "transition" is widely used in relation to the change of the economic arrangement of the ex-socialist nations, with special regard to the Central and Eastern European countries. However, the transition from what to what is often blurred. Each of the ex-socialist countries was denied private property and the free market. At the same time, these countries regarded improving economic growth and living conditions of the society as central objectives. Accordingly, the free market was replaced by a bureaucratic institutional system which is usually called "central planning" or a "command economy". When talking about the transition of these countries we cannot assume at all that it is a homogeneous process. What is unquestionably common among the countries is that the coordinative role of the state authorities weakened or vanished almost simultaneously. The market coordination, however, was unable to take its role from one day to another. (Hüttle et al., 1998)

Hungary and the CEE countries found themselves in an unfavourable economic/social situation after the change of regime (1989). The total economic policy changed, similarly to other post-socialist countries; prices and the demand-supply relation changed. The market competition became more intense and complex with the changing economic institutional system and changing laws.

We could see not only that the intensity and complexity of the market competition grew parallel with the development of the institutional system, and that the mobility of the capital increased and fundamental changes took place compared to the centrally planned economy, but also that such a peculiar market environment of the free-enterprise economic system was formed in which the competition turns against itself (Bara, 1999).

One of the working processes of the market economy is market competition; establishing its conditions was an important economic policy task in the transitional period after the centrally planned economy. The research analysing the comprehensive changes in the CEE countries' labour market after 1989 represents two main directions. One of the two mainstream economic views is the approach that builds upon the neoclassical micro-economic models, while the other one is the comparative or political economy perspective. The mainstream researchers base their models on the paradigms of the neoclassical theory, using econometric methods. The publications of mainstream researchers first surveyed the employment and wages of the initial phase of the transformation. The modern methodology made it possible to explore the interrelating change of gender, age, schooling and wages of the workforce. The other perspective of research also rests on economic foundations, although it does not apply econometric methods. Its practice is characterised by verbal reasoning and logical demonstration (Polónyi and Timár 2004). In my study I am using the econometric-statistical methods of mainstream economics.

The change of regime brought about radical changes not only in the social reality but also in the social sciences. The post-socialist transformation, on the one hand, changed the status of research concerning socialism, and, on the other hand, it created a new subject matter for researchers dealing with contemporary matters. "The Copernical turn of economics, in which the classical economics was replaced by neoclassical economics, also restructured the area of focus of economics. The mainstream economics, dissecting the issues of economic equilibrium and perfect competition, gave up examining social changes, although it was one of the central problems of the classical political economy" (Gedeon 1997: 59). The collapse of the social regimes eliminated the traditional subject of the comparative theory of economic systems; the post-socialist transformation created a new area for economic analysis.

Countries having undergone the change of regime chose different paths, and their ways of switching to capitalism were also different since the external environmental factors differed from country to country.

While the harbinger of the regime change could be felt in Poland as early as in the '80s, one can speak of this process only after 1992 in the ex-member states of the Soviet Union. In fact, the Polish regime change began when, as a result of the wave of national strikes in August 1980, the party leadership was forced to negotiate with workers and come to a compromise with them. The Gdansk agreement forced the Polish United Workers' Party to give concessions: the Independent Self-governing Trade Union "Solidarity" could be established. It was the first legal opposition movement in Eastern Europe, and had 10 million members in a short period of time. Solidarity developed into an immense social movement against the central government. The organisation put forward claims associated with wage and social affairs; however, it soon became clear that solving the supply problems was impossible without deep economic reforms. Solidarity soon began to claim the right of controlling production and distribution. They saw the guarantee for the restoration of the market equilibrium in corporate self-governance based on self-governing works councils, against the centralised economy. The decentralisation of the economy, transforming the state-owned property into public property, was a power-political issue, which was clear to the party leadership as well. Solidarity demanded free elections as early as 1981, since it was clear to them that no real economic reform was possible without demolishing the political barriers. The state of war introduced in 1981 put an end to the democratic efforts. Meanwhile, even the promised economic reform did not happen, because the increase of the separateness of companies, the liberalisation of the private sector in the small-scale industry and supporting the agriculture was diametrically opposed to the practice of the state of war. Basically, only a drastic price increase was implemented on 1st January 1982 when the average prices of foodstuff increased by 241% and the prices of energy and fuel increased by 171%. The official data indicate that the real income dropped by 32% in just one year. Finally, the obstacles to the transformation to free market were eliminated in 1989.

The three Baltic states regained their independence in 1990-91, after five decades of Soviet domination. Lithuania, preceding the two other countries, had already proclaimed its independence in March 1990. As part of the Soviet bloc, the Baltic republics were the most reform-oriented, which was

symbolised by the fact that when the reforms began at the end of the 1980s, the Lithuanian, already operating, the economy had been an example to follow. The mass migration entailed by Soviet industrialisation considerably reshaped the ethnic make-up of the population. Mainly Latvia suffered from the colonisation of Russian industrial workers, which is well illustrated by 60% of the population of Riga being not of Latvian origin; their proportion is 40% within the total population. Estonia and Latvia were aware of all these; therefore, having introduced their own national currency, they applied a strict monetary policy. Providing a loan by the central bank via enhancing the quantity of money in circulation in order to finance the budget deficit was strictly prohibited by the Estonian central bank law. Effective monetary and exchange-rate policies are not sufficient for establishing stability without a consequent financial policy. All three Baltic countries adopted strict financial policies, although to various extents, which brought about the drastic decrease of budget deficits soaring at the beginning of the '90s. The extent of the state distribution was 40% to 50% of GDP at the beginning of the transition. Estonia, applying a consequent liberal policy also in the area of budgetary restrictions, was in a leading position, being two years ahead of Latvia and Lithuania. All kinds of price subventions were eliminated in Estonia, whereas subsidies were radically decreased in Latvia and Lithuania, which mainly affected agriculture in the short run. The Estonian restrictions had led to spectacular results compared to the other two countries not predominantly because of their extent, but because they connected the restrictions with institutional reforms (law of competition, law of privatisation, setting up a securities supervision).The three Baltic countries adopted different approaches to the privatisation of state enterprises. Estonia, where almost all the state owned small and medium companies had been privatised by 1995, proved to be the most successful in this area as well. The Latvian privatisation was similar to the Estonian one in many respects; however, the pace of the transformation was much slower. At the beginning strict protocols were in place for restricting the properties to be privatised. Purchasing was exclusively possible for cash and only for those who had been living in Latvia for at least 16 years.

The political revolution in Czechoslovakia started with protests beginning on 17 November 1989. A legal commemorative demonstration began then, a so- called smooth revolution. By the end of November the Czechoslovakian Communist Party had lost its power. Many processes were launched in the first months of 1990 that served the economic and social transformation of the country, but which tragically influenced the relationship between the Czech Republic and Slovakia. The most considerable ones: cutting back the production of heavy weapons, which mainly affected Slovakia (where unemployment became 12% by 1991, whereas it was 5% in the Czech Republic), and the transformation of agriculture and the removal of agricultural subsidies. An important step in dismantling the old structure was legislation relating to the political parties, the freedom of assembly, and the right to vote, as well as several individual and civil rights. Laws ensuring radical economic reforms were prepared and accepted at a fast pace by the parliament in the summer of 1990. The popular title of the reform was "shock therapy" and "belt-tightening", the effects of which were felt more quickly and more radically by the Slovak part of the country than the Czech one. The characteristics of the reform included a restrictive monetary policy, the privatisation of state properties (that is, small and large privatisation) and giving back the properties (restitution) confiscated after 25 February, 1948 (during the communist takeover in Czechoslovakia). The economic reform laws entered into force in early 1991, and their effect further spoiled Czech-Slovak relations, already fraught with tensions.

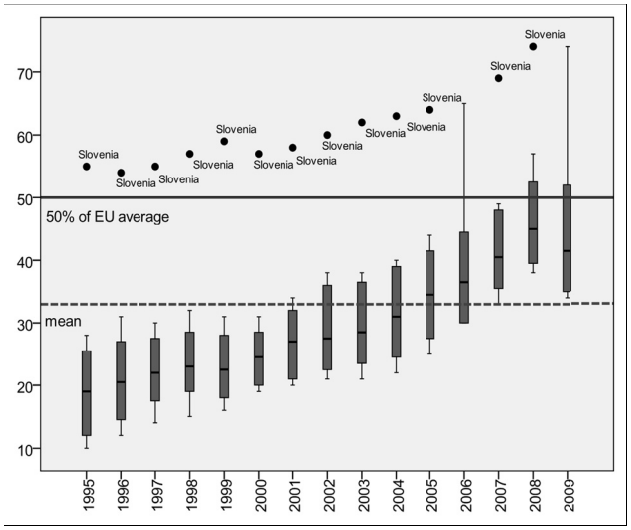
The transformation taking place in the Central and Eastern European countries in the past 20 years can be roughly summarised as follows:

- The changes have taken place in the main directions of Western civilisation's development: the capitalist system in economics and democracy in politics.
- Total transformation was in process in all spheres: in the economy, political structure, political ideology, legal system, and social stratification.
- The transformation was free of violence.
- The process of the transformation took place in peaceful circumstances. It was not preceded by a war. The changes were not forced by a military occupation.
- The transformation took place extremely quickly, in ten to fifteen years.

The capitalist economy, with competition and the market, is not an ideal dreamland. Every system has negative innate system-specific drawbacks: not only socialism but also capitalism. As long as capitalism stays what it is, there will always be unemployment, the inequality of income distribution will always be strong, and there will always be losers of the competition who may drift into financial troubles. A wise, forward-looking and consistent governmental policy can mitigate the innate problems, but cannot totally eliminate them; their revival always threatens.

ANALYSIS OF THE LABOUR MARKET SITUATION IN CEE COUNTRIES

Instead of an overall analysis of the labour market situation I wish to highlight the main segments and provide some necessary information to understand the situation. Before introducing the labour market situation I describe the general economic conditions using the GDP per capita as a percentage of the EU-27 average of the CEE countries. Figure 1 shows the average value and the 50%. We can clearly see that the percentage value of the GDP per capita has been continuously and evenly growing since 1995. Relatively significant growth can be observed in the case of the GDP per capita after the year 2000; Slovenia had outstanding values in each case. Welfare is not uniform in the Eastern Central countries, thus the labour market situation will reflect significant discrepancies in the case of the specific countries.



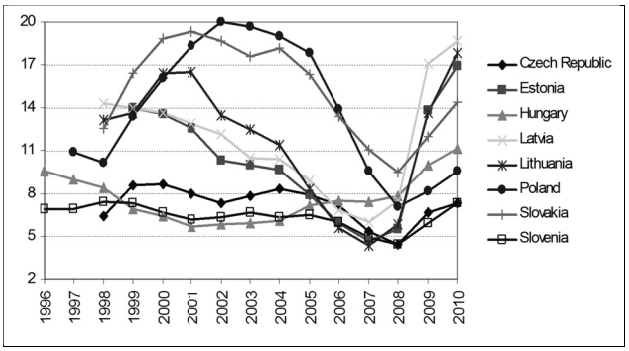
Source: Own compilation on the basis of Eurostat data

Figure 1. GDP per Capita of CEE Countries as a Percentage of the EU-27 Average

Change of Unemployment Over Longer Period of Time

The rate of employment considerably decreased and open unemployment appeared. Its degree differed from country to country; it was lower than the European average in some countries and higher in others. Unemployment practically traumatised the society. Job security was lost. This happened at a time when life had become more uncertain in other dimensions as well.

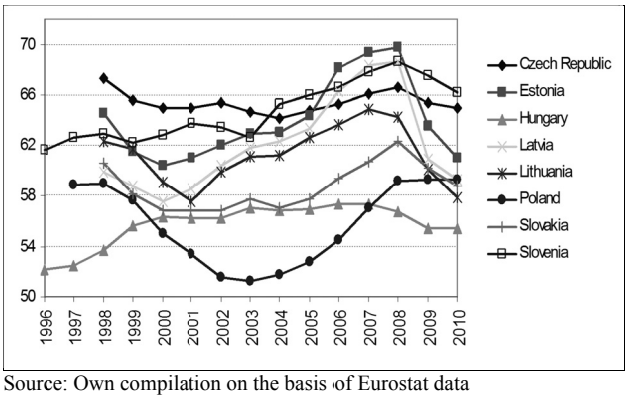
The evolution of the unemployment rate shown in Figure 2 illustrates well the process of the regime change. The most dramatic are the Slovakian and Polish curves, which showed a 15% drawback by the year 2008. The unemployment rate data of Hungary, Slovenia and Czech Republic moved together in each period, although its opposite would have been expected in the light of the GDP figures. Estonia, Latvia and Lithuania travelled along a different route. Their rates of unemployment continuously decreased after the change of regime; they not only completed the regime change quickly and efficiently but were also able to handle the suddenly appearing unemployment efficiently. The economic world crisis commencing in the autumn of 2008 could be instantly felt in the labour market as well; most of the states were unable to get out of the deep recession, although they introduced significant employment policy measures. For example, in Hungary public employment programs became dominant (the Way to Work Program) to treat the problem; however, unfortunately, they did not lead to permanent results. Unemployment struck Latvia the most severely.



Source: Own compilation on the basis of Eurostat data

Figure 2. Unemployment Rate (%) between 1996 and 2010

The regime changing countries in question can be categorised into two groups in terms of the rate of employment (Figure 3): Poland, Slovakia and Hungary possessed lower levels of employment; whereas the rest of the countries moved into higher categories. Studying the Estonian employment policy could be a separate topic; they were able to reach the employment level of 70% as set out by the Lisbon Strategy; however, the crisis struck them as well and it interrupted the trend of rapid growth.

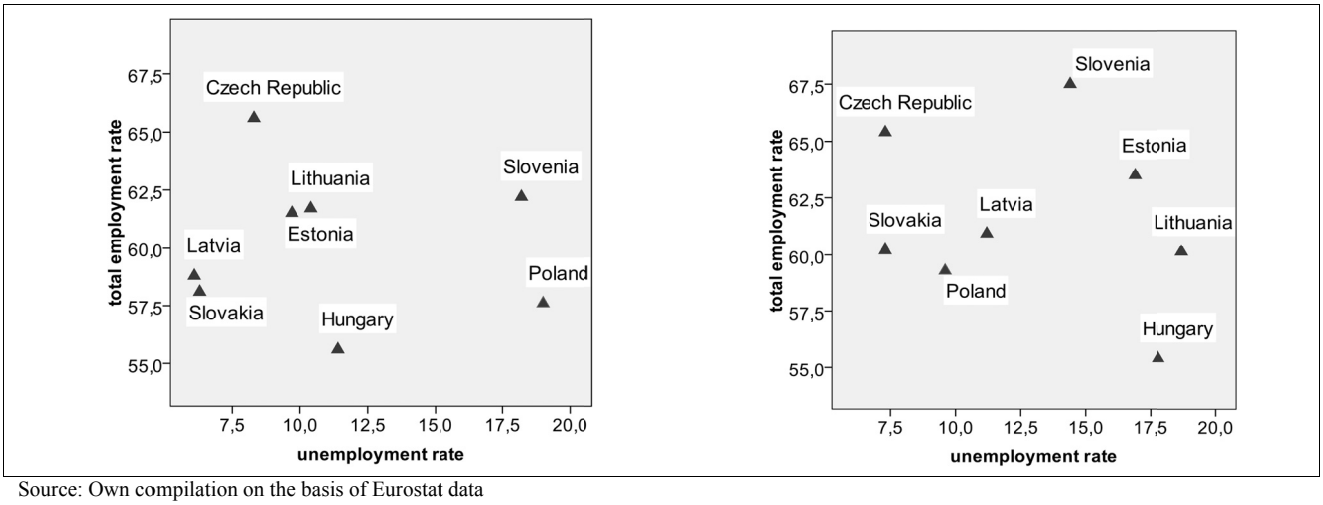


Source: Own compilation on the basis of Eurostat data

Figure 3. Employment Rate (%) Between 1996 and 2010

Positioning of the CEE Countries

By placing the employment and unemployment data in two dimensions, the movement of the countries over the past 10 years is easier to observe (Figure 4). The position of Slovenia and the Czech Republic became stronger by 2010, since their rates of employment had grown and rates of unemployment had decreased. Poland and Slovakia also implemented successful employment policies that put them into a more favourable position. The employment rate was the lowest in the case of Hungary in both periods among the surveyed countries, and the unemployment rate further increased during the 10 years. The most considerable decline could be observed in Latvia, Estonia and Lithuania.



Source: Own compilation on the basis of Eurostat data

Figure 4. Labour Market Position of the CEE Countries in 2004 (left) and 2010 (right)

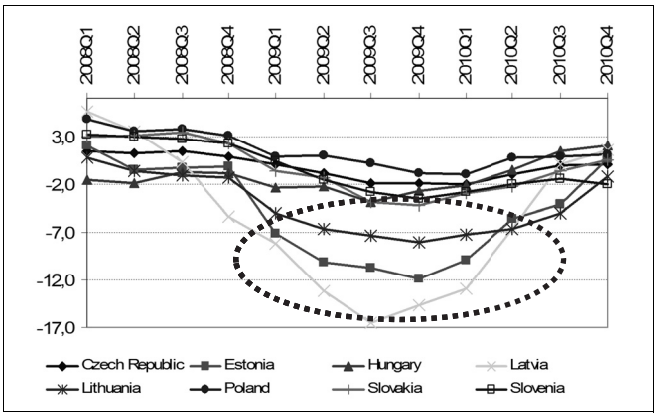
Hungary had a relatively flexible labour market compared to other East Central countries at the time of the change of regime. After the reforms of 1968 the state influenced the wages paid by companies and the employers could freely choose the level of employment. Changing jobs was not limited by administrative rules, which was reflected in the relatively high level of labour turnover. Further liberalisation took place before 1989: wage regulation gradually eroded, banning mass dismissals decreased and a set of institutions were established that facilitated the life and foundation of enterprises. The inherited administrative barriers were rapidly demolished following the collapse of the socialist regime; however, the period of transition and accessing the European Union created new regulations.

Table 1
Length of Recession in the CEE Countries (% change on previous quarter)

	2007Q3	2007Q4	2008Q1	2008Q2	2008Q3	2008Q4	2009Q1	2009Q2	2009Q3	2009Q4	2010Q1	2010Q2	2010Q3
Czech Republic	1.3	1.0	0.3	0.7	0.2	-0.9	-3.6	-0.5	0.5	0.4	0.6	0.8	1.0
Estonia	0.4	0.4	-2.2	-1.0	-2.6	-5.7	-5.6	-3.7	-1.3	1.4	1.0	1.9	0.7
Hungary	0.3	0.6	1.2	-0.2	-1.0	-2.1	-3.2	-1.3	-0.8	0.1	1.4	0.2	0.6
Latvia	1.9	0.9	-3.0	-1.8	-1.8	-4.0	-11.3	-1.3	-4.2	-0.6	1.0	1.2	0.9
Lithuania	3.4	0.3	1.0	0.4	-1.8	-1.2	-11.5	-2.1	-0.1	-1.1	1.4	1.0	0.3
Poland	1.3	2.2	1.4	0.7	0.8	-0.4	0.4	0.6	0.4	1.4	0.7	1.2	1.3
Slovakia	2.5	5.2	-1.4	1.0	1.2	0.6	-7.6	1.1	1.2	1.4	0.7	0.9	0.9
Slovenia	2.0	0.8	1.7	0.7	0.2	-3.3	-6.0	-0.6	0.4	0.1	-0.1	1.0	0.3

Source: Own compilation on the basis of Employment in Europe 2010 data

The effect of the global economic crisis has been perceptible in Central and Eastern Europe. The length of the crisis is characterized by the increase of per capita GDP by quarters (Table 1). The Baltic countries and Hungary were affected by the crisis for the longest time and to the greatest extent. After the outbreak of the world economic crisis (Figure 5) the Baltic countries were in the worst position, but their employment growth rate increased in the 4th quarter of 2010.



Source: Own compilation on the basis of Eurostat data

Figure 5. Employment Growth Rate (%) and the World Economic Crisis

EXAMINATION OF OKUN'S LAW

In the literature we could read different definitions of Okun's law. According to Sänger and Stiassny the "Okun's law postulates a negative relationship between movements of the unemployment rate and the real gross domestic product (GDP)." (Sänger and Stiassny 2000:3)

"Typically, growth slowdowns coincide with rising unemployment. This negative correlation between GDP growth and unemployment has been named Okun's law, after the economist Arthur Okun who first documented it in the early 1960s." (Knotek 2007:73)

According to Okun's law every 2% rise in GDP compared to the potential GDP causes 1% unemployment growth. Okun noted that the unemployment rate has 1% change in the natural rate of unemployment (NAIRU = non-accelerating inflation rate of unemployment) compared to the output gap by ß% change (Okun's coefficient). The output gap is the difference between potential GDP and actual GDP or actual output.

$$\frac{Y - Y^*}{Y^*} = -\beta \times (u - u^*) \quad (1)$$

where:

Y is actual output

Y* is potential output

u is actual unemployment

u* is the natural rate of unemployment

β is Okun's coefficient (a constant derived from regression show the link between deviations from natural output and natural unemployment).

The output gap is the following:

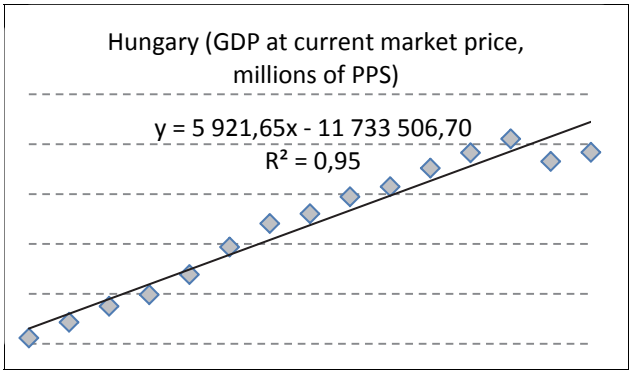
$$x = \frac{Y - Y^*}{Y^*} \quad \text{or} \quad x = \left[\ln(Y) - \ln(Y^*)\right] \times 100 \quad (2)$$

where x is the output gap.

Okun's law is

$$x = -\beta \times (u - u^*) \quad (3)$$

When I made the calculation, first I defined the potential GDP with the linear regression equation.



Source: Own construction on the basis of Eurostat data

Figure 6. GDP at Current Market Price in Hungary (1996-2010)

Table 2
Potential GDP and Output Gap

Hungary	GDP (millions of PPS) Y	Potential GDP (millions of PPS) Y*	Output gap (%) x=ln(Y)-ln(Y*)
1996	82 356.9	86 106.7	-4.45
1997	88 586.8	92 028.4	-3.81
1998	95 043.2	97 950.0	-3.01
1999	99 632.8	103 871.7	-4.17
2000	107 761.6	109 793.3	-1.87
2001	118 786.5	115 714.9	2.62
2002	128 189.0	121 636.6	5.25
2003	132 100.9	127 558.3	3.50
2004	138 905.8	133 479.9	3.98
2005	142 927.3	139 401.6	2.50
2006	150 418.6	145 323.2	3.45
2007	156 569.3	151 244.9	3.46
2008	162 115.4	157 166.5	3.10
2009	153 103.1	163 088.2	-6.32
2010	156 769.3	169 009.8	-7.52

Source: Own compilation on the basis of Eurostat data

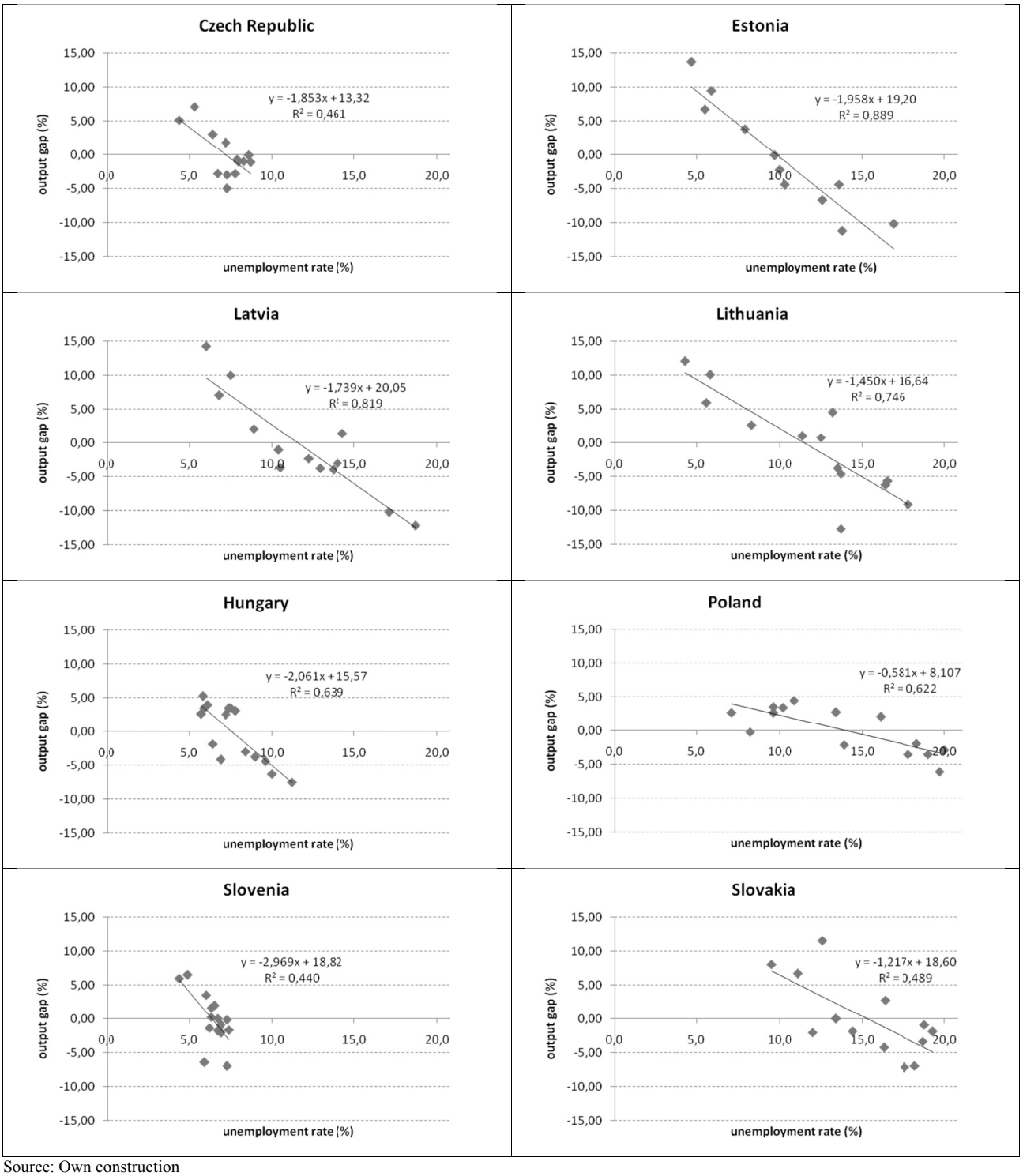
Y* = 5 921.65×1 996-11 733 506.7 = 8 6106.7

Then I calculated the bivariate linear regression model.

Table 3
Okun's Law in the CEE Countries (1996-2010)

	Okun's law	output gap (if the unemployment rate is zero)	natural unemployment rate (if the output gap is zero)	natural unemployment rate (if the output gap is - 2%)
Czech Republic	x= - 1.853u+13.328	13.328	7.193	6.113
Estonia	x= - 1.958u+19.207	19.207	9.809	10.083
Latvia	x= - 1.740u+20.057	20.057	11.527	12.676
Lithuania	x= - 1.451u+16.646	16.646	11.472	12.850
Hungary	x= - 2.061u+15.570	15.570	7.555	8.525
Poland	x= - 0.582u+8.107	8.107	***13.930***	***17.367***
Slovenia	x= - 2.969u+18.820	18.820	6.339	7.012
Slovakia	x= - 1.218u+18.603	18.603	15.273	16.915

Source: own compilation



Source: Own construction

Figure 7. Unemployment Rate - Output Gap with Linear Regression Equation in CEE Countries

We could observe that the Okun's coefficient is approximately 2% except in Poland (0.582). If the GDP decreases about 2% to the potential GDP then the unemployment rate increases 1% to the natural unemployment rate – this holds true for all CEE countries except Poland. According to my findings Okun's law is valid between 1996 and 2010 in all CEE countries except Poland.

CONCLUSIONS

We could observe that the CEE countries are differences between the major labour market indicators. It is needed deeper analysis for the further consequences. According to my second research question the Okun's law is not valid in all CEE countries (Poland is in unique situation).

One can speak of a unique transformation in the case of the Central and Eastern European countries. This was the only transformation that took place, along the main directions of the economic and political changes in the Western countries, peacefully, free of violence and, at the same time, extraordinarily fast. It is a story of success viewed from a world history perspective. The picture is different from the point of view of everyday life; the transformation caused, and, probably is causing nowadays, serious economic difficulties.

"The change of regime at the beginning of the '90s upset the system of economic relations; Hungarian and the CEE economy are suddenly majority of its external markets. As a result of the declining living standard and the thoughtless import liberalisation the internal market for domestic manufacturers shrank extremely rapidly. This brought about the considerable decline of the agricultural and industrial production and unemployment." (Timár 1997: 991)

Hungary, like other transition countries, had to adapt to the new social, economic and labour market conditions following the collapse of the socialist regime. The suddenly occurring large percentage of unemployment had to be dealt with, which was partially successful since the unemployment significantly decreased between 1999 and 2001. Afterwards, before the period of accession to the European Union, it increased again and it has not yet come to a new period of decline. This was naturally coupled with a decrease in the number of the employed and the shrinking population.

Unemployment is an important and sensitive indicator of the economic growth and labour market situation in consolidated market economies. The decrease of unemployment is associated with an economic boom, growth of employment; the increase of unemployment is related to recession and the decline of employment. The change of unemployment hardly influences economic activities that are stable relative to the previous factors; these are growing according to a slowly changing trend. I intend to finish this paper on a positive tone, so I quote Kornai's (2000:33) words: "I regard the transformation of the Middle-East European region as a success story, because it took over the capitalist economist system, putting these countries on a growth path that points towards the main sequence of history."

Acknowledgement

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Possible Sources for Progress of the Shared Service Market in Hungary

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SUMMARY

The aim of a shared service model is improving processes and ensuring more cost-efficient operation. In this paper I focus on the Hungarian shared service market. In my research I analyzed a number of Hungarian shared service case studies to disclose the main characteristics of the market. To determine those drivers that contribute to the growth and those obstacles that hinder it, I interviewed some key experts from these service markets. In this paper I introduce the role of Central and Eastern Europe in the global market, the importance of this sector in the labor market and state budget and uncover the competition among the regional countries. I compared the positions of these countries in this competition and analyzed what could be the break point for Hungary.
Keywords: Shared Services, Hungarian Service Market, Source Strategy
Journal of Economic Literature (JEL) code: M19

INTRODUCTION

Background of the Research

In the area of global capital investments the service sector has taken on a more and more important role. While in the 1970s only 25% of foreign investment capital was put into the service sector, in 2002 it had reached 60% (Bilics 2005).

Earlier the service industry and the companies operating in service delivery were less international than manufacturing companies. But there was a dynamic progress and nowadays the proportion of foreign direct investment (FDI) in the service sector has moved to a higher level.

The big companies attempt to rationalize operational costs by standardization and deliver services over country's borders as well. Depending on the expected assets at the end of the process, either a shared service center is created or an outsourcing provider will get the delivery. The key lies in the reorganization of processes. If the function moves to an offshore location then this will mean further cost reduction.

Once a company has decided about the sourcing issue, it should deal with another question, the location. In particular, three factors could influence the location decision: the available competence (that is, the existence of labor required for performing the task), the investment incentives and the national tax system. Their equilibrium and the country's image will influence the country judgment (Sebök 2006).

Justification of the Research

In the countries of Central and Eastern Europe the shared service model appeared in the early 2000s. The previous lack of interest was caused by the fact that the countries in the area are too small as a market and had less advanced office technologies and information infrastructure, which was not very attractive for multinational companies. However, EU enlargement has changed the situation. It expanded and opened the market and it has accelerated growth and progress. This change has positively affected the market of service organizations and made Central and Eastern Europe increasingly favored. Contributing to this is the fact that West European companies laid claim for shared service centers that operate on the same European cultural and language base, have good local relations, and can be accessed easily.

For companies that considering this region there are four different strategies from the point of view of implementation (Thorniley 2003:14):

- Delivering to Central and Eastern Europe from a Pan-European center. Oracle, the U.S. software company chose this strategy. It is not very cost effective and caused language problems as well but the company could obtain a coherent picture of the whole European market.
- Moving the Pan-European center to a Central and Eastern European location. If the company detected a significant cost advantage, it could move the existing center to here. The U.S. aluminum industry giant Alcoa did this.

- Setting up a satellite center in this region: for those companies that operate shared service centers with low costs and success, there was no sense in changing them. These companies set up satellite centers in this region to test the market or prepare for a bigger change. The U.S. company IBM did so.
- Creating clusters in the region. More company leaders are thinking in terms of cluster strategy: creating regional centers that deliver not only back-office functions but could support more valuable areas such as marketing or business improvement.

Among these four different strategies, in the last ten years the setting up of satellite centers and relocation of service centers were the most favored.

Countries or even regions developed very attractive offers and incentives and created extra strategies for the industry, setting up a framework that fostered attraction and retention of investments. Hungary also recognized the value of this in the early 2000s and supported industry progress with incentives. As a result, numerous company leaders had chosen Hungary as a location for shared service investments.

The Purpose of the Research

The aim of this research is to explore the position of the Hungarian service market in Europe and globally. I want to discover the main drivers of and obstacles to market progress. Finally I collect the advantages and disadvantages of Hungarian market and make some forecasts.

Methodology

I summarized the most important points of the Hungarian shared service sector articles and statistics in the last three-to-five years. Besides the literate review I collected five Hungarian shared service case studies (BP, BT, IBM, Morgan Stanley, Sapa). I analyzed the case studies to draw some conclusions from the human resource exercise of companies. I had also three interviews with key experts from Hungarian service markets to disclose the market tendencies and the conditions for further growth. As consultants and real estate specialist they could create a real picture about the current changing on the market and forecast the future tendencies.

ROLE OF HUNGARY ON THE CEE SERVICE MARKET

Within the region, the most important period of establishing shared service centers (SSCs) in Hungary was 2000-2004.

In Table 1 you can see that Hungary was competitive only for a short time and after this Romania and Poland won stronger positions in this contest.

Compared to the regional competitor countries, Hungary had no advantage in foreign language skills. According to research of the EU public research agency, the Eurobarometer, released in its 2001 study, Hungary is quite weak in foreign language knowledge (EC 2002:35).

Table 1
Number of Shared Service Centers by the Date of Establishment

	2004	2005	2006	Total
Hungary	6	0	4	10
Romania	5	7	20	32
Poland	15	10	18	53
Czech Rep.	2	8	1	11
Slovakia	4	0	1	5
Bulgaria	4	3	2	9

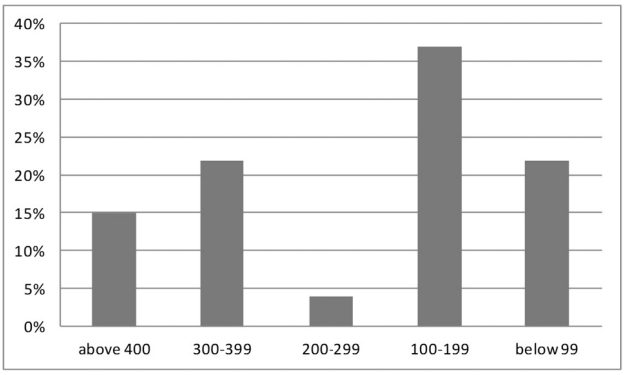
Source: Wéber 2008

The attraction was rather the good regional conditions, the close geographical position to the West European countries, and almost unlimited amounts of skilled labor whose cost was half than in the West (but twice as much as in India) (Erdős 2005). Since then the cost of labor has been increasing year-by-year in the region. This catching up to the level of West Europe's costs stimulates the leaders of service centers to improve their efficiency indices (Thorniley 2003:17).

After the last decade's rapid growth the business service industry – and within it the shared service sector – had became one of the key segments of service industries and an important employment sector of the country.

Today, there are more than 80 shared service centers in Hungary, that primarily employ an educated workforce that speaks foreign languages, with about 40,000 employees. The leased office space by shared service centers is 200,000 square meters, which is approximately one-tenth of the total A-list office space in Hungary. According to the experiences of real estate developers, the technology of these centers becomes outdated in 3-5 years and after this point centers move to Asia, where the operational costs are lower. But today there is a tendency not only for these centers to remain, but for some companies to move their service centers from cheap countries like India to Central and Eastern Europe (Sütő 2012). The cause of this trend is that companies recognized advantages of CEE region in language skills, educational level, technological advancement on the contrary of offshore countries.

According to Randstad Hungary's research (see Figure 1), 37% of the Hungarian shared service centers have between 100 and 199 employees.



Source: Randstad Hungary 2011

Figure 1. Number of Employees in Hungarian Shared Service Centers in 2011

The shared service centers provide a range of business services – most notably in finance, accounting, procurement, logistics, information technology and human resources area – mostly regional and sometimes globally. According to PwC consultant, Mr. Bunna, this sector is a major employer, with around 1.2% of the state budget coming from taxes on it in 2010. (Bunna 2010)

The key question is why a parent company would choose Hungary when looking for an investment location to establish a new service center. To win this competition Hungary has to prove that its society is cosmopolitan and capable of operating on an international level, and that its young people speak several languages and are well-educated. But there is a serious responsibility placed on government and the leaders of local government. If cities have conveniently located, well-equipped offices and public transport infrastructure then this could mean a high attraction value. About 40-50 countries are on the list and competing against each other for such a decision.

Several consulting firms make rankings that can help in choosing an investment location. Perhaps one of the most famous lists is the Global Services Location Index (GSLI), annually compiled by A.T. Kearney, which ranks the most favorable 50 countries on the base of service sourcing. Three aspects are taken into account in the methodology of ranking: financial attraction of the county (40%), the availability of adequate human resources and training (30%), and the business environment (30%). The first ranking was in 2004 and since then the first three countries have been India, China and Malaysia. The position of Hungary is continuously changing but it has been constantly in the first 40 countries. Unfortunately within Central and Eastern Europe Hungary is not very competitive.

Table 2 represents the changes in the ranking of Central and Eastern European countries. In brackets the global rankings could be seen. The rankings of 2004 and 2005 do not include Latvia, Lithuania, Estonia and Ukraine, Bulgaria and Romania were not in the first 50 countries. The comparative table shows that a few years ago Hungary could prove relatively easily its benefits to the potential SSC investors, but now the situation has changed.

Table 2
Changes in Global Services Location Index Ranking of Central and Eastern European Countries

2004	2005	2007	2009	2011
Czech Republic (4).	Czech Republic (7).	Bulgaria (9).	Bulgaria (13).	Estonia (11).
Poland (10).	Bulgaria (15).	Slovakia (12).	Estonia (18).	Latvia (13).
Hungary (11.)	Slovakia (16).	Estonia (15).	Romania (19).	Lithuania (14).
-	Poland (18).	Czech Republic (16).	Lithuania (21).	Bulgaria (17).
-	**Hungary (19.)**	Latvia (17).	Latvia (22).	Poland (24).
-	Romania (24).	Poland (18).	Czech Republic (32).	Romania (25).
-	-	**Hungary (24.)**	**Hungary (37.)**	**Hungary (31.)**
-	-	Lithuania (28).	Poland (38).	Czech Republic (35).
-	-	Romania (33).	Slovakia (40).	Ukraine (38).
-	-	Ukraine (47).	Ukraine (42).	Slovakia (40).

Source: own edition based on The A.T. Kearney Global Services Location Index (2004, 2005, 2007, 2009, 2011)

Unfortunately, in the past five years Hungary has become completely sidelined from the first 10-20 positions, as has also happened with the Czech Republic, Poland and Slovakia, although the business service sector was growing during this period. However, the position of the Baltic countries (Latvia, Lithuania and Estonia) has significantly strengthened, while the ranking of Romania and Bulgaria also improved considerably. So these countries are now the major competitors of Hungary. It is true that several Asian countries have overtaken Hungary on the global service market, but for example the world-leader India is not a competitor because companies choose India for one purpose and Central and Eastern Europe for another. In India there are services similar to mass production that do not need special skills. On the global service market the position loss of Central and Eastern European countries can be attributed also to the fact that the Middle East and North Africa have also appeared among the most popular locations. The reason for their rise in the rankings is based on their large and educated populations and the proximity of Europe.

The year of 2011 was not a good one for the Hungarian service market. Although many investors were thinking of locating in Central and Eastern Europe, and Hungary was also on the list, last year Hungary was rarely the winner. In 2011 Poland was the favorite country. There are two arguments against Poland. One is the even scarcer workforce than in Hungary. The other is better international political image, which is not very lucky for Hungary now. But these are short term influencing factors that will diminish in the medium term. It is sure that more shared service centers will come to Hungary – the only question is how many. Government regulations and incentives have also a key role in this. Now Hungary supports the high value-added, research-based service centers like BT, Morgan Stanleys, BP. Nowadays there is a tendency in Hungary to turn to outsourcing and the shared service market. There is a demand for process optimization and automation, i.e., those services that reduce operational costs and increase productivity (Berta 2011).

Hungary's biggest competitive edge is that labor costs is still lower than in Western Europe. This is reinforced by the fact that low labor costs are coupled with higher expertise and the investor company can get access to a workforce similar to that of a Western European nation but at a lower price. In addition not only the labor costs are lower, but also the other incremental costs (training, office space, etc.) are lower (Nagy 2010).

Further competitive benefits are the high working hours per year, the big consumer markets around Hungary (about 150 million people) and the high unemployment rate. This is good for the Shared Service Centers because they can get cheap and educated labor quite simply.

It could be an important point of view that Hungary possesses the conditions – infrastructure, regulation, etc. – that are needed to stimulate investments. The quite high standard of living is also an asset of Hungary. Hungary holds the 20th position on the global ranking of International Living. (Figyelőnet 2011)

However, the risk of continuous growth in labor costs is modulated by the fact that Central and Eastern Europe should not compete with the Far East. Countries that contend in this competition only with the cheapness of their workforce cannot win in the longer term. If countries want to stimulate investments, they have to aspire to added-value creation because an educated, skilled, foreign-language-speaking workforce is more valuable. So those countries will be successful in the attraction and retention of service centers that undertake not low added-value, transactional work but that focus on more difficult, knowledge-based tasks. To achieve this, countries and regions have to invest in developing education and training.

On the Hungarian service market the vast majority of shared service centers are in Budapest. According to key experts, however, this should be changed in the future because without it the growth will be unsustainable. If the change to non-Budapest locations was successful the current number of employees could grow by 5-10% annually, because 80% of shared service centers are still in the expansion phase. This growth potential is clearly visible in the expansion of functions in certain centers. While in Hungary there is neither a shortage of workforce nor oversupply on this segment, in Czech Republic or in Slovakia the shortage could be sensible. In Hungary the labor supply of provincial cities, especially cities where universities are based, is still unused. However, major infrastructure investments are necessary, since service centers need large and technologically advanced offices. These could be the source of growth because there are a number of EU subsidies for these purposes (Mártonffy 2010). For now, Budapest has an unbeatable advantage with its young, foreign-language-speaking workforce in comparison with the other cities of Hungary, but hopefully this disadvantages will decline in the future (Szilágyi 2011).

The most important expectation for the young, educated workforce of shared service centers is the ability to learn quickly and decision-making skills. In service centers there are higher attrition rates than in other sectors. The reason for the manpower exchange is the high expectations in these centers that require a higher education diploma or degree. While this job could be interesting initially, it could become very monotonous for these highly educated employees after a little while. Because of this, in the service centers the attrition rate could reach 20-30% annually. It is also typical for an employee to change jobs between two service centers, naturally for a higher position (SSC Recruitment 2010).

The "job-hopping" phenomenon in which the young workforce migrates from one center to another has long existed in India. It has become a well-known problem in Hungary as well. There is even a company that does not let any visitors into the center because of its fear of competitors. Other companies apply incentives to retain their workforces (Sebök 2006).

Of the Hungarian shared service staff, 80% are highly educated and speak foreign languages excellently, and about 20% have only a secondary education. This ratio is reversed in the West, because intermediate level skilled workers also speak a foreign language that is necessary in those centers. This is the reason why shared service centers recruit mainly among highly educated people, but it is also true that there are some centers that need really qualified experts, for example from the fields of engineering or IT. The competitiveness of Hungary depends also on maintaining its labor cost on a low level (Mártonffy 2010b).

CONCLUSION

To attract new service investment in Hungary the national and the local government has to act consciously. Budapest, along with Prague, Krakow, and Warsaw, was one of the most favored investment cities at the beginning of the 2000s. But now the growth has been stopped. All of the countries in the neighborhood have recognized that they need to encourage the investment in shared service centers because this sector has become an important player for the domestic labor market and the national budget as well.

To get more investments the national government should create a better country image abroad, politically as well as economically. This could be very important because the investors need a feeling of security. It creates trust that the investment will yield its benefits. Central and Eastern Europe does not yet play so large a role in the global service market because a notable proportion of Western companies do not know the region.

Improving foreign language skills is also a national issue. In Hungary the society speaks foreign languages very poorly and speakers are few in number. It is necessary to improve this situation because all foreign investments need foreign language skills, and the service sector especially. Now only the higher educated people speak foreign language well but the government should start education programs for the secondary-school graduates as well. The national government and the education are responsible for regulations of language education.

In Hungary the provincial cities have not as developed an office infrastructure as the service sector investors need, but there are a lot of possibilities to change this situation. According to a Deloitte survey (Wéber 2008) there is a shift in the country. Several provincial cities like Szeged, Debrecen, Pécs, Kecskemét, and Székesfehérvár could be attractive enough in cost/quality that these cities would have a competitive edge not only over Budapest but over other capitals as well. But for the sake of evolving their competetiveness, the local governments of these cities have to do more than they have done so far.

In addition, the national government should improve the IT and financial regulation that influences international operations and supports internal movement on the labor market.

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Heritage Tourism, Thematic Routes and Possibilities for Innovation

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SUMMARY

Heritage tourism is a recently "fashionable" phenomenon, also an answer for present-day trends. Views are different concerning what belongs to this concept; some consider only cultural values, some others rank natural values as well, and parts of the World Heritage have unique place among them. Thematic routes are a special opportunity for heritage tourism, targeting new groups by additional programs and attractions, making them more interesting, attractive and diversified. They play an important role in common European programs, too, like the Cultural Routes Program of the European Council. When developing thematic routes, especially those based on heritage elements, there are a number of special aspects which have to be taken into account, like authenticity and local initiation. Experiencing globalisation in tourism as well, we can state that success is based on innovation. Regarding heritage tourism, product, service, organisation and process innovations are equally required as new ways of being competitive.

Keywords: Heritage, thematic routes, heritage development project, tourism innovation
Journal of Economic Literature (JEL) code: L83

INTRODUCTION, RESEARCH QUESTION AND CONCEPTS

Tourism is one of the leading economic sectors, and growing very dynamically. According to a recent report of the World Tourism Organisation (UNWTO), tourism had a 9% share of the global GDP, and a 3% share of employment in 2009. Regarding Europe, the same figures are 5% and 5.2%. In the past decade, international tourism has grown by 4-5% per year. Though global tourism fell by 4% in 2009 due to the crisis, the recovery was strong and rapid, producing a 6.9% increase in international arrivals in 2010, with a record of 935 million. The forecast growth in European tourism for 2011 was 2-4% (UNWTO data).

The importance of cultural tourism is continuously increasing within the total tourism market. According to UNWTO data, the share of cultural tourism in international travel increased from 37% (1995) to 40% (2004). In 2009 there were about 375 million cultural trips. In Europe, tourists make up 71% of all visitors to cultural attractions.

We can also experience a qualitative change in tourism demand, partly due to the development of society as a whole and partly to globalisation (OECD 2010). The main drivers are increasing incomes, new and cheaper means of transport, and intensive use of the info-communication technology. Parallel with this, we can experience the development of a global network society. As is stated in a recent research study of the EC about the impact of cultural routes on SME's innovation and competitiveness, the traditional vertical value chains are being replaced by a more complex value network, where destinations, for instance, become an integral part of value creation process.

The question arises: what can the key elements be in the successful development of thematic routes? At first glance, the answer seems to be simple: innovation! But which type? Product and process innovations can be placed in the first place. First of all, developments have to be based on local initiation and will; these can be one of the sources of authenticity, too. Regarding processes, quality can be a central element.

As an initial hypothesis, I would state that thematic route development is not really built on professional bases, but rather according to available grant programmes, and by the initiative of (sometimes external) experts and municipalities rather than local people and activists.

In Section 1, I would like to introduce the main concepts in the research area. In Section 2 existing methodologies are summarized. Section 3 presents how thematic routes appear in the European policies, with examples in Section 4. Section 5 summarises the main concepts of tourism innovations. Finally, conclusions are drawn from local and international surveys.

Cultural Tourism

Cultural tourism involves visits to cultural attractions and events. The currently most accepted definition is given by the Association for Tourism and Leisure Education (ATLAS): "Cultural tourism is the movement of persons to cultural attractions away from their normal place of residence, with the

intention to gather new information and experiences to satisfy their cultural needs." (Richards, 2003) The OECD report on culture and tourism (2009) summarizes the main drivers for developing cultural tourism: valorizing and preserving heritage; economic development and employment; physical and economic regeneration; strengthening and/or diversifying tourism; retaining population; and developing cultural understanding.

ATLAS has also identified several quantitative and qualitative trends, as shown in Figure 1:

Quantitative trends	Qualitative trends
– Increased number of "cultural holidays" – Rising education, income and status levels in the market – More use of Internet for information gathering and booking – More visits to cultural events and festivals, driven by increased supply and a desire for co-presence	– Growing interest in popular culture, or the "everyday culture" of the destination – Growing role for the arts in cultural tourism – Increased linkage between tourism and creativity, and the growth of "creative tourism" – Growing "omnivorous" feature of cultural consumption

Source: Impact of European Cultural Routes on SMEs' innovation and competitiveness, 2011

Figure 5. Trends in Cultural Tourism

Europe is a key cultural destination, and several significant cultural tourism niches can be identified, replacing mass tourism: creative, educational, gastronomic, religious, spiritual and holistic, wellness and spa, cultural volunteer and roots of migrant tourism types. Authenticity is also an important question, where new trends can be experienced towards context, originality and user-generated content.

As we will see, heritage is an important part of cultural tourism, and its development can evidently fit the identified market niches.

Heritage

The best-known concepts can be summarized as follows (in Puczkó-Rácz, 2000):

- Nuryanti (1996): part of a society's cultural traditions and also a community's identity.
- Hall-McArthur (1998): such a past value which is considered to be worth preserving for the next generations by the previous ones.
- Thurnbridge and Ashworth (1996): in a broader sense, there are five essential aspects: any physical remains from the past, individual and collective memories, intangible elements of the past, results of cultural and artistic works, natural environment, outstanding economical activity, the so-called "heritage industry"

Heritage elements can be divided into two main groups: cultural and natural heritage; and cultural heritage can be divided into two sub-groups of tangible and intangible elements. Natural heritage is mentioned much more rarely, though it appears e.g. as a World Heritage category. We can find cultural heritage with several possible definitions. In general, it involves the most characteristic dimension of an area and its population (culture). According to Czene (2002), it is a complex heritage kept together by culture, but they are not equivalent with each other; culture becomes heritage by the character of accumulating traditions. Tóth–Trócsányi (1997) says that cultural heritage is a continuously shaping phenomenon. Both are in close relationship with the socio-economic space, which is a result of certain processes and also a starting point for future development.

We can find several more definitions in different legal documents as well. The most important ones are the following: World Heritage Agreement (1972), which Hungary joined in 1985; 21st Statute of 1985 (Hungary); LXIV law of 2001 about the protection of cultural heritage (Hungary); UNESCO Agreement about the Protection of Intellectual Cultural Heritage (2003).

Heritage-based Tourism

There are several different opinions and views, the most important are as follows:

- Swarbrooke (1994, in Puczkó-Rácz 2000): „based on heritage, where heritage is the central element of tourism product on the one hand, and it is the main motivation for tourists on the other".
- National Trust for Historic Preservation (USA): „ travelling to experience the places, artefacts and activities that authentically represent the stories and people of the past and present. It includes historic, cultural and natural attractions." Furthermore: „ heritage tourism is a critical piece of the historic preservation puzzle. It helps protect our nation's natural and cultural treasures by building awareness, creating new jobs, providing new business opportunities, and strengthening local economies. Every time you enjoy a historic place, you are not only helping to preserve it — you are helping to improve the quality of life for residents and visitors alike".
- *Nurick* (2000): Heritage is anything transmitted from the past, especially: original cultural and natural material; the built environment; the archaeological resource; the intangible heritage; the natural heritage, that 'heritage' is perceived by our multicultural society as having a quality or significance that makes it worth preserving for its own sake and for the appreciation of current and future generations.
- Silberberg (1995): Cultural and Heritage Tourism is a tool of economic development that achieves economic growth through attracting visitors from outside a host community, who are motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle/heritage offerings of a community, region, group or institution. Such travel is focused upon experiencing cultural environments, including landscapes, the visual and performing arts and special lifestyles, values, traditions, and events.

➢ Fladmark (1994): cultural heritage tourism is not only identification, management and protection; it helps in understanding tourism's effects on local communities and regions, increases economical and social benefits, helps finding the necessary financial resources for protection, marketing and promotion.

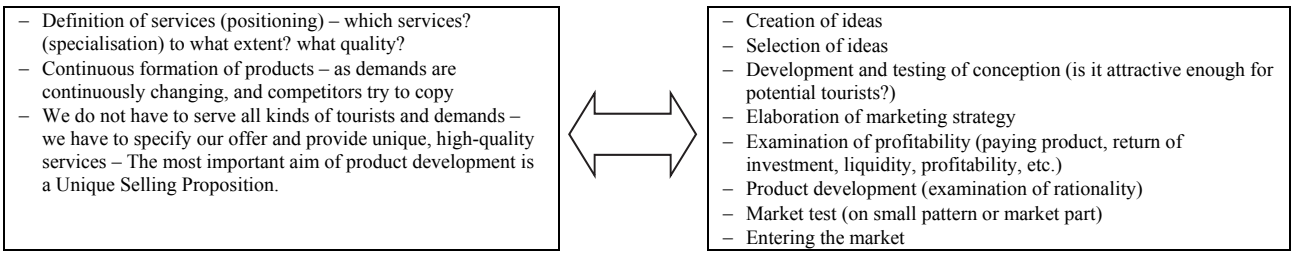
Thematic Routes

Finally, the concept of "thematic route" means a route that connects natural or artificial attractions, on the basis of a certain theme, and that are accessible by a form of transport. Considering sustainability, thematic routes provide education and leisure at the same time. The main aims of such routes are: raising interest, education, development of cooperation, new markets, protection, packaging, decrease expenditures, development, fitting the trends, etc.

The Cultural Routes of the European Council program – as we will see later – testifies to the special role of thematic routes and trips in global tourism today.

METHODOLOGY OF HERITAGE DEVELOPMENT

Though heritage tourism has several special characteristics, we have to take classical product development processes into consideration as well. These can be found on the right side of Figure 2, while the tourism product development priorities are on the left side:



Source: own edition

Figure 6. Classical Process of Product Development

Heritage planning means the proper utilisation of past remains. This became general only in the 20th century in Western Europe, where heritage values of an area are in focus; their utilisation by such methods which results in concrete benefits (e.g. increasing number of visitors). Heritage values are used for economical functions. The development of a heritage product is the result of activity over several periods.

The National Trust for Historic Preservation (USA) worked out the following methodology for the development of cultural heritage tourism:

Step 1: Access to potential

Step 2: Plan and organise

Step 3: Prepare for visitors, protect and manage

Step 4: Market for success

With the help of the following five basic principles we can avoid all the difficulties arising from the meeting of culture, heritage and tourism:

➢ Collaborate: Building partnerships is essential, as they help develop local support. Tourists' demands can be satisfied only by several, cooperating institutions and stakeholders.

➢ Find the Fit: Balancing the needs of residents and visitors, defining the amount of tourists that can be handled. Local circumstances determine what an area needs to do and can do.

➢ Make sites and programs come alive: Creative and exciting interpretation is important! Engage all senses of visitors!

➢ Focus on quality and authenticity: Authenticity of previous generations, local culture and traditions – these will interest visitors and make the area unique. Only these can add real value.

➢ Preserve and protect: Heritage elements are irreplaceable! Only long-term preservation and protection is acceptable. This is true for traditions, handicrafts, feasts and gastronomy as well.

An Australian research program has found the following key success factors regarding heritage tourism (Carlsen et al. 2008):

Success factors in heritage tourism operation	Critical success factors in heritage tourism
– Agreed objectives and clear concepts – Financial planning for budgeting, capital raising and price setting – Effective marketing strategies based on sound market research – Destination and proximity to major markets and visitor flows – Human resource management, including paid staff and volunteers – Planning for product differentiation, life cycles and value adding – Quality and authenticity of products and experiences – Engage cultural heritage and tourism expertise in conservation and promotion – Design interpretation as an integral part of the heritage tourism experience	– Issues influencing visitor flows and market access included: – accessibility convenience – high fuel costs discouraging self drive visitors – group tour access – destination image – attraction clustering – proximity to major markets – location in growing tourism regions – use of night tours to keep visitors in the region – proximity to other facilities such as accommodation and entertainment in nearby towns and cities

Source: Carlsen et al. 2008

Figure 7. Key Success Factors in Heritage Tourism

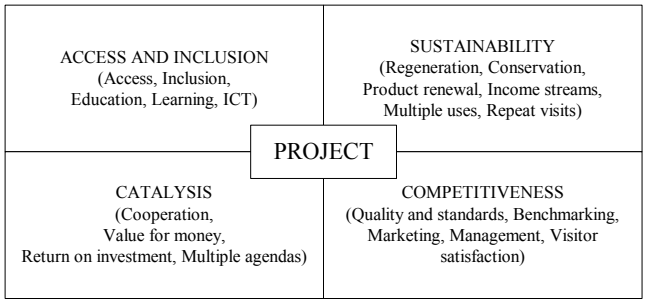
Nurick (2000) has examined *British heritage tourism*. He used the best-known definitions (see earlier). Heritage plays an outstanding role in Great Britain's tourism, one of the leading motivation elements, and he found that it is almost impossible to draw a boundary between heritage and non-heritage tourism:

Main motivations of leisure travel to Great Britain, activities determining decisions	
Visiting 'heritage' sites (castles, monuments, churches, etc.)	37 %
Exploring historic / interesting towns / cities	29 %
Visiting artistic/heritage exhibits (museums/art galleries/heritage centres/etc.)	29 %
Attending performing arts, etc. (theatre/cinema/opera/ballet)	18 %
Visiting gardens, parks	16 %
Hiking / walking / rambling / orienteering	8 %
Pleasure motoring	4 %

Source: Nurick, 2000

Figure 8. Motivations of Leisure Travel in Great Britain

Based on his findings, he identified the following success factors related to heritage-based tourism projects:



Source: Nurick, 2000

Figure 9. Success Factors in Heritage-Based Tourism Development Projects

Finally, there are certain community aspects as well, regarding cultural heritage tourism. There are three essential components which have to be integrated:

- The desire of a community to share its cultural legacy with tourists,
- An intact cultural resource base that can provide the foundation for a community cultural heritage product,
- An accessible travel market that is interested in visiting the certain heritage.

HERITAGE AND CULTURAL ROUTES IN EUROPEAN POLICY

Parallel to economic and political construction, which is one of the means of integration, travel also plays an important role in raising the awareness of a continent that sometimes gives the impression of both seeking unity and of splitting up. Travel within Europe allows the practice of a multicultural European identity and a concrete sharing of its values by the citizens. The idea of enabling Europeans to rediscover, in their spare time, a tourist cultural practice has led to a turn towards great trans-border, even continental, routes. These routes influenced the history of cultural relations, and for centuries supported exchanges and blending; imposes itself upon our contemporaries as one of the instruments of cultural action and free movement of ideas and people.

The Cultural Routes programme was launched by the Council of Europe in 1987. Its objective was to demonstrate, by means of a journey through space and time, how the heritage of the different countries and cultures of Europe contributes to a shared cultural heritage. The Cultural Routes put into practice the fundamental principles of the Council of Europe: human rights, cultural democracy, cultural diversity and identity, dialogue, mutual exchange and enrichment across boundaries and centuries.

Themes must satisfy all of the following criteria (CM/Res (2010)52):

1. the theme must be representative of European values and common to several countries of Europe;
2. the theme must be researched and developed by groups of multidisciplinary experts from different regions of Europe so as to ensure that the activities and projects which illustrate it are based on consensus;
3. the theme must be illustrative of European memory, history and heritage and contribute to an interpretation of the diversity of present-day Europe;
4. the theme must lend itself to cultural and educational exchanges for young people and hence be in line with the Council of Europe's ideas and concerns in these fields;
5. the theme must permit the development of initiatives and exemplary and innovative projects in the field of cultural tourism and sustainable cultural development;
6. the theme must lend itself to the development of tourist products in partnership with tourist agencies and operators aimed at different publics, including school groups.

The list of priority fields of action includes:

- cooperation in research and development,
- enhancement of memory, history and European heritage,
- cultural and educational exchanges for younger Europeans,
- contemporary cultural and artistic practice,
- cultural tourism and sustainable cultural development.

A technical body, the European Institute of Cultural Routes, was set up in 1998 for operational purposes. Its role is to examine applications for new projects, to monitor activities in the field and co-ordinate the work of partner organisations and to disseminate and archive information documents.

In 2005, the European Institute of Cultural Routes created the European Economic Interest Grouping (EEIG) "Culture Routes Europe", giving life to a common organization which aims to gather all the networks responsible for the cultural routes of the Council of Europe and to work together, in a coherent way, for tourist visibility and realisation of the cultural routes program.

The European Heritage Label is designed to promote the transnational European dimension of cultural property, monuments, natural or urban sites, tangible and intangible,

contemporary and traditional heritage and sites that have played a key role in building and uniting Europe. It aims to strengthen the support of European citizens for a shared European identity and to foster a sense of belonging to a common cultural space.

The European Heritage Label is designed to encourage people's understanding of, and respect and support for, their heritage. It represents a means of protecting and promoting our cultural heritage, with the aim of identifying and passing on that heritage to future generations, while strengthening cooperation between European states.

REGIONAL AND INTERNATIONAL EXAMPLES

Concerning the Northern Hungarian tourism region, there are significant examples for the importance of heritage-based tourism, with special regard to thematic routes:

- During the elaboration of the tourism development strategy of the Northern Hungarian tourism region in 2007 a deep attraction audit was carried out. From the 4,670 elements identified, 2,688 could be classified as cultural and heritage attractions.
- The Hungary – Slovakia Cross-border Cooperation Programme 2007-2013 provided a very good opportunity for tourism development projects, too. The "Tours without Borders" project was carried out in 2009-2010, and its main aim was to elaborate joint tourism packages along three thematic routes: the Gothic Route, the Iron Route, and the Forts and Castles Route. The project partners were Borsod-Abaúj-Zemplén County and the Town Municipality of Spišská Nová Ves. These heritage elements play a very important role in the tourism offer of the region, and represent great historical and cultural value. Just think about the common parts of our history, or the industrial significance, as this area was referred to as the "iron heart of Europe" in the 18th-19th centuries. Under the name "MEDIAVEL" another project is being carried out in 2011-2012 as a continuation, with the aim of elaboration of new joint programmes along thematic routes: the Gothic Route, Industrial Heritage Trails and Wine Routes. Eight museums are also involved with new exhibitions, and the partners are Borsod-Abaúj-Zemplén County and the Košice Region.

Within the above mentioned "Tours without Borders" project, a survey was carried out among the participating entrepreneurs and tourism organisations (both Slovak and Hungarian) (Nagy 2010). The results seem to support the initial hypothesis. The project was initiated by the two municipalities, and potential stakeholders were addressed only later. The rate of participating stakeholders was the first "shock" – only around 15% from all of those approached. Regarding existing partnerships, 65% of Hungarian and 40% of Slovak entrepreneurs have certain co-operations. Only 60% had heard about thematic routes before, though the guests of 81% of the respondents would have been interested in them. Of the respondents, 78% had considered participating in such programs, but they were not proactive, rather waiting for an invitation to join. Finally, 90% of the entrepreneurs wanted to be involved. Regarding the rate of participation, this is only 13-14% of the number of the original sample. This supports the hypothesis that well-established project developments should be based on local initiation, especially in special programs like heritage-based thematic routes.

Within the Cultural Routes of the European Council, by this time, there are 25 routes under the "brand" European Cultural Routes. To mention just a few examples: the first route was the Santiago de Compostela Pilgrim Routes in 1987, running through eight countries. The European Mozart Routes were established in 2002, with the cooperation of 10 countries. The Phoenicians Route (18 countries in three continents), established in 2003, represents an ancient, Mediterranean community, and developed into an intercultural model of the European Union. Hungary has been an important partner in the Central European Iron Trail from its "birth" in 2007, with Miskolc and its surroundings in the focus.

There are many of other, sometimes even surprising or extreme examples, when heritage elements have become the main tourism attractions of an area. Just as a "foretaste", some of them are:

- Military heritage as tourism attraction – Military heritage tourism is a further sub-set within heritage tourism, in which "the veneration of military death is linked to modern nationalistic impulses". (Gatewood and Cameron 2004). There are outstanding museums, like the National Military Museum of New Zealand; previous "top secret" objects which became visitor centres, like the former submarine base in Balaklava (Ukraine); or the Maginot line thematic route in Lorraine, France.
- Active tourism and nature protection along the former "iron curtain" – "Borders separate – nature units": this is the slogan of a great nature protection program, also known as the Green Belt of Europe. The zone has a really untouched natural habitat, the best sample of Europe's biodiversity. Today it is 6,800 km long, in 22 countries. The aim of the Iron Curtain Trail, which is still in development, is to also transfer the idea of experiencing history to a European level as well. This 6,800 km trail guides cyclists with an interest in history from the Barents Sea on the Norwegian-Russian border to the Black Sea along what used to be the Iron Curtain, which is now no longer a dividing line but a symbol of a shared, pan-European experience in a reunified Europe.

TOURISM INNOVATIONS

As we could see, cultural and heritage tourism are a very complex system and play an outstanding and significant role in world tourism, especially in Europe. European Cultural Routes also face a challenge. The European Institute of Cultural Routes prepared a report for the Congress of Local and Regional

Authorities of the Council of Europe, identifying the following trends and their rising importance in cultural tourism (in: EC CIP project study 2011):

- showcase exhibitions and of European capitals for culture,
- for visitors of museums of territories and scientific museums, based on living presentations, i.e. with people working (interactivity!),
- industrial heritage sites,
- military architecture sites,
- memorial sites,
- natural and historic parks,
- celebrations, especially those of prominent local, national and European figures,
- annual themes coordinating a common policy for territories.

The recommendations for existing Cultural Routes have been organised in five main groups of capacity-building, network governance, performance evaluation, brand image and marketing, and cooperation with the main stakeholders.

These five areas, at the same time, are the main areas of tourism innovations, too. Innovation in tourism is difficult and not frequent (yet), because of some special features of tourism: structure (mainly SMEs) and characteristics (services, not products; intangibility).

First of all, we have to know clearly the actual trends in tourism to be able to provide offers according to demands. These trends represent the great market pull force, which can motivate tourism providers and entrepreneurs to conscious innovation. Besides strong price competition, we can experience liberal conditions which can increase the number of competitors; global providers put high pressure on local SMEs; basic synergies have to be taken into consideration; and, finally, the development of information technology plays a determining role in tourism. These tendencies have to result in new services and structures, and in radical changes in selling channels, and have to open new marketing ways, like solutions based on databases or network organisations.

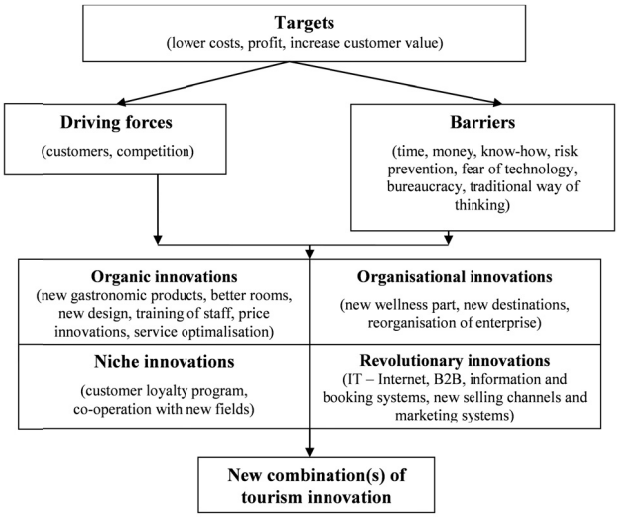
Defining the possible areas of tourism innovations, we need the following key elements:

- individualisation of mass tourism, according to the double expectation of effectiveness and uniqueness,
- wide use of ICT systems,
- formation of special value elements (like design, colours, emotions) increasing the experience,
- strengthening the core competencies of destinations and enterprises, and
- serving new markets, target groups – i.e. marketing innovations.

The main points of tourism innovations are to give new target-tool combinations, new problem solutions – the possible forms, according to Weiermair (2004) are:

- organic innovations (based on existing competences, relations and networks),
- niche innovations (new, concentrated forms of existing competences),
- organisational innovations (new co-operations without existing competences), and
- revolutionary innovations (new competences on existing relations).

Figure 6 provides examples of these forms.



Source: on the basis of Weiermair, 2004

Figure 10. Tourism Innovations

Due to globalisation, the competition between destinations is increasing. Product innovations themselves are not enough for maintaining competitiveness. As was stated before, process and organisational innovations are what is most lacking. As tourism products are combinations of several services, we have to deal with networks and co-operation regarding organisation patterns.

Innovation has become one of the main economic viewpoints both in the European Union (e.g. the Lisbon and EU 2020 strategies) and on the regional level; just think of the significant investments in research and education (mainly from community sources) or subsidies in the most innovative sectors (like transportation and energy). This is true in the case of services, too, especially in those requiring a certain level of know-how and qualifications, which is typical in certain tourism activities (e.g. accommodation, catering, real estate). Information and communication technologies (ICT) are the fields where we can experience the most changes and innovations in tourism as well. The wide use of ICT and the Internet has allowed tourists to directly keep in touch with service providers, thus decreasing the transaction costs and eliminating intermediaries.

Today, changing demand directs the market, which is ruled by the customers. Service providers suffer the consequences of this. This means a new kind of problem, which requires an innovative and creative way of thinking for the formation of wide range of niche tourism forms. Moreover, lifestyles have been changed over the past decades – a healthier population with higher disposable incomes travels more often, but for less time. Focus is put on "best quality for best price", instead of the lowest price. Customer loyalty is decreasing; tourists are searching for sustainable and authentic forms of holidays instead of mass tourism.

Tourism innovations cannot be limited to individual innovation performances; rather, they are the results of some cooperation, where entrepreneurial (stakeholders, companies, etc.) and community (tourism offices, marketing agencies, local and regional municipalities, etc.) levels both take part. The community level determines the economical, social, ecological, regulative, organisational and other environmental factors which are interconnected with tourism, and their management has the largest impact on innovation processes.

Experience can also be considered as one of the most important and determining factors of service innovations, regarding the experience-focused principle of tourism. They see innovations as the results of a process rather than results of individuals' creativity. Thus, "open innovations" can play a very important role in tourism; for example, the "best practices" method is widely used in tourism development projects.

"A product is what you buy – an experience is what you remember" (Michelle Sears, 2011) – this should be the main driving force in tourism innovations.

Innovation is part of the decision-making daily routine of big companies – but for small tourism enterprises, focusing mainly on certain destinations, innovation possibilities are limited. The primary obstacle is the lack of human and financial resources. Small enterprises concentrate on average demands of average customers – new products and services mean a real challenge. Tourism based on experience, sustainable tourism, nature-based, cultural or heritage-based tourism can be a strategic way for elaborating innovative new tourism products.

CONCLUSIONS

The OECD held its conference "Innovation and Growth in Tourism" in 2003 in Lugano, Switzerland. In its final paper, Prof. Peter Keller, Chairman of OECD Tourism Committee, summarized the conclusions as follows (excerpts):

"Innovation in tourism is no longer a question of a giant leap forward – it is a series of small steps that lead to incremental growth. Innovation is a feedback process. One innovation inevitably leads to another one. Innovations improve products and reduce the cost of processes. The innovation process has thus become an investment process. Large companies set aside a significant part of their total budget for research and development. In this regard, investments in innovation are not that different from investments in installations or equipment." (Keller 2004, p.4)

There is a need for innovation-oriented tourism policy. The future of traditional destinations will depend on a more innovation-oriented tourism policy, which has the main tasks of:

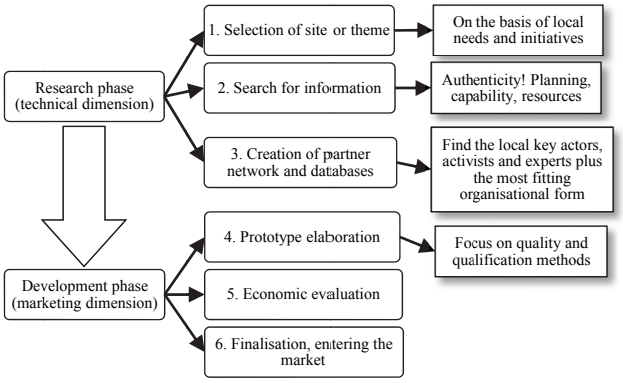
- extending the life-cycles of tourism products and services,
- achieving a steady rate of growth – depending on inputs of capital and labour, more effective structures, reaching new markets, investment on training and know-how, as well as research and development.

These factors can be considered as the main driving forces of innovation. They can generate further development, and act as a base for the required product, process and marketing innovations. This is true on the destination level, too, which should become more competitive on both national and international markets. Destinations should utilize endogenous factors, like agglomeration in the case of traditional tourism centres. Similarly, traditional destinations focus on the best and biggest places, thus shadowing the agglomeration; the latter then can focus on niche markets.

Regarding innovation mechanism, there are certain tools in innovation-oriented tourism policy, like training (providing long-term human resources, stating that destination is the best level of learning; production and diffusion of know-how (reaching sector-specific and macroeconomic, mainly external values); innovation promotion (supporting competition and cooperation, creating innovative atmosphere). We can state that competition between destinations depends on innovation abilities.

Networking is one of the key elements in the case of cultural routes, too. This naturally leads to a series of further questions, like forms of cooperation, management, leadership and governance, financial backgrounds, etc. SMEs – being the basis of tourism – are participants of networks along cultural route; that is why it is so exciting to wait for the final results of recent research projects on the routes' impact on their innovation ability.

So, how to go on with the innovative development of heritage-based thematic routes? Using the traditional models of community and company research and innovation processes, my first model is:



Source: own edition

Figure 11. Initial Hypothetical Model for Thematic Route Developments

The blocks on the right side of Figure 7 contain my hypothetical conclusions, which, at the same time, point out the directions for my further research questions. As product development itself is not enough for success and competitiveness, the priorities should be:

- elaborating the most suitable organisational form(s) for such heritage-based thematic routes, which are initiated by local people (whether or not it is necessary to have an external expert, initiator, advisor or moderator) – that is, creation of a co-operational model;

- elaboration of a thematic route qualification system or method, which is suitable for establishing a commonly used methodology for all kind of thematic routes (such a system does not yet exist; whether it is possible at all to form such a system, as routes may include many different types of services and stakeholders) – that is, creation of a complex qualification model.

The construction and testing of such a qualification model could be a great step forward for not only product, but also process innovation, too.

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Lean in the Aspect of Sustainability

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SUMMARY

The article introduces the principles of Lean and Sustainability. It will analyze the points where overlaps occur between these two fields and show how a well-functioning unified system focusing on both areas could be developed. It looks at the effects of Lean and its -best-known tool 5S on the pillars of Social, Economical and Environmental Sustainability. Finally, it makes proposals on how to develop a sustainable system and what could be applied.
Keywords: Lean; Sustainability; Social Sustainability; Environment and Economy; 5S
Journal of Economic Literature (JEL) code: Q01, Q56, Q57

INTRODUCTION

There are two systems - Lean and Sustainability -, which operate far from each other, but which I think should work conjointly, since their fundamental conceptions are very similar. Lean is a corporate management strategy oriented to produce the product or service as economically as possible. Its two main principles are the respect of the human being and the elimination of wasteful activities from the process regardless of the nature of the work (blue-collar work, administration or creative tasks). At first sight Lean seems to be in harmony with the concept of sustainable development which "meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland 1987: 24). The reason why I emphasize that it seems like that just at first sight is because, like Sustainability, Lean can be understood differently from unique and individual points of view. It is commonly known that, unlike other concepts, sustainability as a word has quite a few definitions; most of them are similar in meaning but still cannot be defined as simply as the laws of acceleration or conservation of mass in physics.

The Lean system has a similar problem, although it is a well-elaborated and logical system, but in general Lean is an approach implemented with a set of tools which is used to achieve positive results towards the most economical direction (Dües et al. 2012) in the most suitable way for people. This means that each and every corporation or firm may use a different set of tools of Lean to improve the efficiency and economic indicators successfully. Therefore, comparing the two concepts is not simple, but even here the possibility is given to analyze the effects from a global point of view. This article introduces the main theories of Lean and Sustainability supplemented by the chances of their realization.

Lean, Sustainability and Real Life

K. Schatzberg and J. Lebica, researchers from Cape Cod Community College, made a comparison between Lean and Sustainability in a study (Schatzberg et al. 2008), but in many cases real-life examples are missing and it considers only bare concepts, leaving out the practical realization and the real background. Because I realize that real life needs to be included, business practice is also taken into consideration in my amplifications. Table 1 contains comparisons made by Schatzberg et al., with observations on the realization of these factors in actual business practice based on my own work experience.

As seen in Table 1, Lean is on the right track, but it has not reached the level need to reach global sustainability. It is also evident that organizations dealing with Sustainability could learn from the Lean system.

Table 1
Comparison of Lean and Sustainability Based on its Realization in Business Practice

	Lean	Sustainability	Reality
1	Long term philosophy - create value for people, community (including environment), economy	Invest in long term - consider people, community, finance and environment	It is true that both systems plan for long-term but in case of Lean the economic consideration is more important unlike Sustainability, where society and environment play significant roles.
2	Create the right process to produce the right results	Ensure the ecosystem is in balance; if necessary intervene in the system	In fact, both systems consider well-functioning procedures necessary and make intervention in them. But while in the second one this happens globally, in the first one they pay only attention to only the sites and factories or those areas which are obliged by law, like emission rates. (Roncz & Tóthné Szita 2011)
3	Add value by developing people and partners	Invest in people - Consider stakeholders including your staff and partners (e.g. suppliers)	At this point the two systems could be in line with each other, but while Lean mainly focuses on only the professional development, Sustainability pays attention to social development as well. The only obvious exception is Japan, where the sustainable approach is really applied towards the employees. (Fazekas & Ozsvald 2000)
4	Continuously making problems visible and solving root causes drives organizational learning	Be transparent and consider the whole system vs. treating symptoms	One of the main points of Lean principles is to reveal problems and find solutions instead of finding someone to blame, then to share our results with other teams, departments and sites. (Cusumano & Nobeoka 1998; Melton 2005; Staats & Upton 2011) Unfortunately, this point is hardly manageable outside the company, where they fight against not the symptoms but the causes. Channels which could transmit the information and the achieved results do not exist and even if they do, they are often so bureaucratic that their efficiency is lost.
5	Minimize or eliminate waste of any kind	Creating waste harms something else in the system	In this point both concepts are on the right track, however the motivation is different. Since companies are profit oriented, this distinction is inevitable. (Dües et al. 2012)

Source: edited by the author based on Schatzberg et al. (2008)

5S IN THE ASPECT OF SUSTAINABILITY

As I mentioned earlier, Lean tools are quite widespread, but the best-known one is still 5S, which derives from the list of five Japanese words (Melton 2005). In order to understand 5S, some explanation is needed (see Table 2).

Table 2
5S in Connection with Sustainability

5S	Equivalents in Sustainability
Seiri – Sorting	Eliminating unnecessary material
Seiton - Straightening or setting in order / stabilize	No more waste of time, clear systems
Seiso - Systematic cleaning	Safer environment, less danger and fewer accidents
Seiketsu - Standardizing	It is easy to follow and understand, more satisfied staff
Shitsuke - Sustaining the discipline or self-discipline	Less maintenance, storage and stock-taking cost, smaller energy consumption

Source: edited by the author

Seiri – Sorting

Due to sorting less unnecessary raw material has to be purchased. The goal is to review the tools, office equipment, and documents which surround us and to decide whether they are necessary or not, based on the regularity of using them. For example, in an office where 10 people work there is no need to have one photocopier or laminator at every desk, but everyone is quite likely to need notepads or pencil boxes. In a case like that one of the photocopiers and laminators would be enough, and the rest of the machines and other redundant equipment can be passed to other departments or even be sold; furthermore, if a specific machine (e.g. shredder) is used only once or twice a year it is worth thinking of possible outsourcing.

With this we become not only economically but environmentally sustainable, since the quantity of purchased products will be less if this principle is considered earlier, during the planning process.

Seiton – Straightening or Setting in Order / Stabilize

The advantage of this S is that in this way the loss of time caused by searching for things can be avoided and we get a clear and transparent system. It can help to make the material needs of the process more traceable. For example, this idea is applied when making containers for maintenance workers to store their tools. Each containers has several shelves, and not only does everything have its exact place on them, but the cases are custom-made and fit to each tool, so it is impossible to place another tool in them. This makes missing tools noticeable immediately; moreover, the long hours spent in searching in drawers can also be eliminated.

Following this, the unnecessary orders can be avoided, meaning the reduction of warehouse, transportation and energy cost and expenses.

Seiso – Systematic Cleaning

Some literature refers to this point as sweeping, meaning constant and systematic cleaning (Melton 2005). Systematic, because one general cleaning is often not enough and it is necessary to follow a list step by step. If at the end of a working

process the proper cleaning is not done, during the production of the next items dirt and other spare parts can get into the newly manufactured goods, making it impossible to sell them, or in the worst case the products may become extremely dangerous.

A safer environment results in safer work and better quality products. Safer working conditions have social effects too, because if the workers feel that they and their environment get attention, they will develop a positive attitude and as a consequence they will care about their work and environment.

Seiketsu – Standardizing

After creating a clear and transparent system, we have to analyze whether it works properly and if some points which do not function accurately occur, further corrections are required to make this operation sustainable in the long-term. If the particular system is accepted by all the participants, it must be standardised. In several cases the leaders' different expectations, the diverse quality of evaluations and feedback, or the lack of these causes problems. In order to solve this issue many companies obligate their leaders to provide feedback and prepare regular evaluations; to do that leaders have to be trained. They use scoring methods on lists which are prepared by HR specialists and accepted at a company level for evaluating their colleagues.

The staff, in this way, can follow the evaluation more easily and can have input into both in their everyday routine and evaluations. Furthermore, in case they have some recommendations, those can be assessed and then can be introduced with less difficulty. Similarly to the previous S, it also has a social effect because it results in staff satisfaction, which has an economic influence on the company, too.

Shitsuke – Sustaining the Discipline or Self-Discipline

At standardization I have already mentioned continuity and the inclination to reformation at organizational level (Staats & Upton 2011) It is such an important point in the LEAN approach that we may even say it appears as a constant catalyst in each and every process, whether it is in connection with work, documents or decisions. The range of Lean tools is inexhaustible and while earlier leaders could make decisions based on economic and production indicators, nowadays other tools are available, such as visual tools. A so-called cockpit chart is one of these, which with its optimal layout of important indexes helps the decision makers to oversee the relevant information. Another one is the andon system (Womack & Jones 2009), which helps people to notice (with visual and/or audio cues) immediately what problem has occurred at which line.

This constant improvement is supported by the fact that even the system of the 5S is still improving; during the years additional 'S's have been added, such as Safety, Security, and Satisfaction, even in this way striving for improvement.

Perhaps the best example for the perfection of processes was the development of poka-yoke tools. As Liker puts it, the poka-yoke means a fool-proof mechanism (Liker 2004). These are creative tools which prevent mistakes from being made by operators. In accordance with this, Womack and Jones (2009) add that these techniques must be complemented with visual feedback from the 5S (where every redundant object is eliminated and every tool has its visible and marked out place) throughout the state variables (often andon displays) and the visible, up-to-date and standard workflow diagrams to the display of essential indicators and cost information. The precise technique depends on the application but the principle is the same: everyone who is concerned always must see and understand all the parameters and the actual state of the work.

LEAN FROM THE ASPECT OF THE PILLARS OF SUSTAINABILITY

It should be mentioned that social sustainability is sill the least analyzed field among the three pillars of Sustainability, so it is understandable that the scientific literature puts more emphasis on the first two, environmental and economical pillars, when looking for similarities with Lean. For that very reason I relied on my experience gained at multinational companies when I drew up Table 3. With this table I demonstrate which of the most common arrangements, actions, processes, effects and emerging problems are the important ones in terms of the three pillars of Sustainability within the Lean system.

Table 3
The Advantages and Disadvantages of Lean in Terms of the Pillars of Sustainability

Lean \ Sustainability	Society	Economy	Environment
Advantages	– Developing own staff and suppliers – Cultural and philosophical background	– Minimize expenses – Better use of raw material, energy and workforce etc.	– Producing less waste which cannot get into the market – Overproduction is smaller, follows the demand of the market
Disadvantages	– Everyone can be replaced – Monotony increases at workplaces	– Less flexible production – Requires a system that operates perfectly (e.g.: JIT)	– Ecological footprint is big (transportation from all over the world) – Concentrating on only internal processes

Source: edited by the author

SOCIETY

The common and at the same time main point of both theories is the human beings. However, Lean examines the role of people only from an economic point of view and regards them as one of many resources. According to Lean every worker has to be in the right place, and to achieve this, their skills are assessed and monitored continuously and if necessary they get training to find the way to the right direction. Nevertheless, that is not enough;, satisfaction requires quite a few factors, as Johansson and Abrahamsson (2009) cite from the congress of The Swedish Metal Workers' Union in 1985, where the nine principles of the "good job" were formulated. We should not forget that in 1987, two years later, Brundtlandt in her report drew up the notions of sustainability for the UN. By that time, in Sweden the effort to provide a safe working environment was already underway, in addition to the demand for co-operative work organization, proficiency in every workplace and for training to become an essential part of work. Although these principles were not formulated in Lean terms, the appropriate approach is reflected in terms of both analyzed concepts. Melton (2005) goes further and compares the old Ford mass production system with the Toyota Production System. As can be seen in Table 4, important steps are made when the new mentality replaces the old one.

Table 4
Production Systems Compared Based on the Human Factor and Philosophy

	Mass production	Lean production
Basis	Henry Ford	Toyota
People–design	Narrowly skilled professionals	Teams of multi-skilled workers at all levels in the organization
Organizational philosophy	Hierarchical - management takes responsibility	Value streams using appropriate levels of empowerment - pushing responsibility further down the organization
Philosophy	Aim for 'good enough'	Aim for perfection

Source: edited by the author based on Melton (2005:p.663)

I often encounter the problem that Lean is held responsible for the monotony of work processes, although it evolved decades ago in Ford's assembly lines, or following the industrial revolution, the time when the beginning of mass production dates back to. It is a fact that in a controlled system it is more difficult to stimulate creativity because the majority of problems are already solved, but it is also true that a person walking with open eyes can always find something to correct. The experiments of Cabris and Simons (2011) prove that the attention required for working safely can be lost even in a well-controlled system, therefore, there is always something to improve and which can increase workplace safety, realizing one of the principles of good work written by Johansson and Abrahamsson (2009).

ECONOMY AND THE ENVIRONMENT

Unfortunately, the economical and environmental interests of sustainability are not yet in harmony, but there are good examples. Like the well-trained workforce, which is economically indispensable not only from the aspect of mass production (Staats & Upton 2011), but also from the environmental point of view. Both Lean method aims for reaching the least possible number of damaged and faulty products, so-called ppm (damaged parts per 1 million ready products). In an ideal case ppm is just only one of the factors that should matter. It would be important to develop a factor that could help to estimate the possible effects of development, the CO_2 emissions and other environmental damage caused by modifications. Later it could build in payback and efficiency calculations, which would increase exponentially by the rate of the environmental impact and would decrease exponentially if the investment is environmentally friendly, i.e. positive in terms of sustainability. According to Melton (2009) such positive development is, for example, when according to the customer's request the production is retooled from big quantities, which mostly meant warehouse production, to the necessary quantities. Naturally, a suitable company is necessary for this modification. Based on the thesis of Shah and Ward (2003) newer and bigger corporations tend to acquire the Lean way of thinking, as opposed to the old and smaller enterprises. Such new and big companies are car factories like Toyota, where they already switched from the traditional mass production to Lean production decades ago (Womack et al. 1990), since no deficit is allowed in this exaggerated competitive environment. Examples for this are the lead time cut, which is done continuously until it causes an increase in cost (Vonderembse et al. 2006), or the intention to minimizing the material handling process (Carvalho & Cruz-Machado 2009).

If the participants (companies, international organizations) involved in one system were fully aware of the processes of the other system, a Globally Sustainable Lean system and approach (GlobaLEANability) could be established, where everyone aims to create a liveable world with the least possible impact and damage.

CONCLUSION

The Lean system provides a good practical basis to manage a company well. Starting from here, I think this system could be developed further if we complement it with Sustainability. Here naturally I do not mean the sustainability of Lean systems, since this principle is a basic requirement of the well-functioning system – as we could see in the case of 5S. The focus on Sustainability should be introduced as an essential viewpoint in Lean, since we should let not just economic interest move the system, but let there also be factors that could make production or a service Lean not only within a particular factory or company, but globally. Both systems have the ability and the possibility to learn from each other; the only missing part is that particular information flow which would be able to link the two systems. Local and international specialists, companies, social organizations and all countries should devote more energy to developing this information flow to achieve global results.

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The Social Problem Sensitivity of the Hungarian Population and Their Social Marketing Sensitivity

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SUMMARY

This study moves beyond the institutional approach to social marketing, interpreting social marketing as an integrated model and practice, with the objective of providing more complex solutions to social problems and promoting the achievement of social objectives. The research program, which has been in progress for two years, interprets social marketing as being a form of stakeholder management shaping behaviours acting along value communities. An empirical representative questionnaire inquiry is introduced that assesses sensitivity, undertaking activities and feeling of responsibility of Hungarian citizens towards social problems. This study also analyses the connections between the importance of values, problem-relatedness, individual responsibility, information gathering habits and hindering-factor approaches, that is, Hungarian behavioural elements of integrated social marketing applications.
Keywords: Social problem identification, value community, stakeholder management, integrated social marketing, theory of reasoned-action, theory of planned-behaviour,
Journal of Economic Literature (JEL) code: M30, M38

SOCIAL MARKETING AND ITS INTEGRATED MODEL

According to the latest and most accepted approach (Kotler–Zaltman 1971) the definition of social marketing can be the following: organizations, institutes and their cooperation; planning, organizing, realizing and controlling of their marketing strategy and marketing activity that tend to solve social duties and problems. At the same time opinions differ as to the professional approach to social marketing. We can identify two basic trends: institute-oriented and problem-oriented perspectives. These are summarized below:

An institution-oriented perspective is when we start with organizational features while discussing marketing issues: for example public service institutes (railway, post, public utilities, public transport), state institutes and state or state-controlled institutions (health, social organizations) political institutes, cultural and religious institutes, and foundations. With the liberalization of the statutory regulations more public services fall partly or fully under market regulation a mechanism, which makes traditional marketing tasks more significant.

A problem-oriented perspective is when marketing focuses on activities (many members with different activities, etc.) to solve problems: namely, the development of towns or regions, the welfare of their inhabitants, regional marketing, the problems of environment protection, health protection, the issues of rehabilitation, humanizing the labour world, problems of support, recreational issues, decreasing and preventing crime, developing education, protecting minorities, culture and its values.

In the wider interpretation, beside the settlement of many issues social marketing raises many unsolved academic and professional problems. Some of them are the following:

- there are still disputes and reservation about the approach of non-profit oriented marketing, that is mainly about the content of a plural view of marketing science, dealing with the interpretation of marketing that concerns special exchange and transactional relationships (Kandler 1980, Bruhn and Tilmes 1989).
- opinions are different about the frames and limits of social marketing, for example to what extent business marketing covers these issues, and how it connects if it does connect to the corporate social responsibility of business marketing.

What does social marketing have to do? It has to change attitudes and behaviours in order to achieve something beneficial (for example to make pregnant women give up smoking, to make people and organizations prevent catastrophes, to make people use condoms in certain sexual situations, to improve water quality, etc.). “Social marketing is the application of marketing for influencing a target so that they accept or refuse, change or give up certain problematic

behaviours, so with these they serve individuals, groups or the whole society" (Dinya et al. 2004: 85).

So the aim of social marketing is to develop constructive solutions in order to achieve the desired change in behaviour, to make the target group understand that the new behaviour has more utility than the effort of the behavioural change.

New forms of behaviours have to be more highly valued than before. For example in order to give up smoking a person has to see the utility of his/her act: the lung activity improves, better life with sport, etc. It is also a solution to increase the cost of the undesirable act with, for instance, a tax. Social marketing also focuses on understanding the necessities, demands, perceptions and barriers of the target group; to understand them it creates an effective plan so it achieves the desired behavioural results. The exchange that is the essence of marketing can also be interpreted because in behavioural change, the change values, costs, advantages and disadvantages are realized. So social marketing is a process that applies marketing principles and techniques in order to create values, to communicate and transmit them in order to change the behaviour of the target group in such a way that the given target group and the society also benefit (health, security, environment, public life, etc.). Certainly misunderstandings may arise in connection with social marketing. Some of the most common are listed below.

- Social marketing is not the same as social advertising. An advertisement is just a device, but social marketing is much more than a simple advert because it is the development of a whole problem-solving campaign program.
- Social marketing is not manipulation, but it is the special device of sales promotion; however, it can be followed and supported by many product sales.
- Social marketing is not the same as a social network, public/social media.
- Social marketing is not the same as support, providing certain goods, products for free or at a discount price.

How do business and social marketing differ?

- while in business marketing the marketing process is a concrete activity supporting sales of a product or service, in social marketing it is rather a process that affects the sales of the desired behaviour
- while business marketing is driven by market, financial or profit aims, social marketing is driven by individual or social utility, benefit
- while in business marketing the choice of the target group happens on the basis of demand capacity, in social marketing the target group is assigned by the effects of their undesired activity
- while in business marketing the competitor is another business, in social marketing the competitor is the current undesired activity and its advantages and costs, the competing values, and the organizations who have an interest in it.

In most cases social marketing is a more difficult task than solving a commercial situation because it requires complex, multi-player, multi-factorial problem handling. In this case several levels of marketing have to be co-ordinated and integrated (state, local governments, professionals and NGOs and companies).

Despite the differences, there are many similarities between the two fields of marketing.

- Client and target group orientation cannot be avoided,
- transaction theory is further valid and determining,
- there is a need for conscious analyses and specific market research,
- target groups have to be segmented from many aspects,
- stakeholders have to cooperate and work together,
- well-known elements of marketing tools should be applicable,
- results have to be measurable.

Alan Andreasen wrote in his book Social Marketing in the 21st Century: "Social marketing means that world has to be better for everyone not only for investors or chairmen of foundations" (Andreasen 2006: 25).

The most important characteristic of social marketing is that it develops the traditional business marketing practice as well because handling social values, questions and social responsibility appears not only as an external duty or sacrifice but as an organic part of business interests. It increases practical efficiency, based on the widening network cooperation that is also needed. So it can legitimately fit into Meffert's marketing development trend (Meffert 2000).

One of the most important objectives of social marketing is to create common values for both profit and non-profit organizations. The significance of social marketing is realized through activities in connection with certain social values. In order to carry out a given activity we search for those individuals and organizations that have the same values, are open to these values and that have same interests in connection with these values. The basis of social marketing is the analysis of values because it is difficult to judge and understand what kind of values somebody has. It is obvious that various social research studies are connected with social marketing analyses because in order to have success in social marketing programs we have to find those who share our values. The definition and creation of value- based communities will be the basic conditions of successful marketing.

Social marketing acts within the market of internal values, where the same objectives do not necessarily mean that the members also want the same thing. For example, 'freedom' does not mean the same to a conservative and a liberal person. It is not easy to agree. so in order to bring the competent members, organizations together to sit at one table we have to be precise when handling values and defining behavioural standards. Values direct practice, activity and accepting certain things. The more obvious point of view we have in connection with the value, the more certain we are to lose those who share other ideas. Deep relations come true only through equal values.

Two value strategy alternatives can be imagined by responsible coordinator organizations in the area of social marketing when handling different problems (Gromberg 2006):

- searching for values that can be shared by the largest portion of the public, or
- specialization in value set.

Furthermore during the preparation and realization our activity we have to consider the following:

- How seriously do we consider our values?
- Are we interested in others with different views or attitudes?
- Which form of cooperation disturbs the value identity of the organization?
- Which aspect of our work creates the core activity and ambition?
- Do we exclude those people who do not share our values?
- Who determines the values to represent within the organization?
- Who determines the statements to represent and communicate officially?

In many social problematic areas – as for topics about orphans, or the education, feeding, and medical treatment of children from disaster stricken, poor countries – stakeholders would only have conflicts if the style of education was detailed in depth. Therefore in many areas polarized issue treatment could be contra-productive. Those who would like to gain the support of the general public opinion have to avoid political, religious or other polarized, divisive issues.

For the success of marketing that is trying to solve social problems planning and strategic thinking is essential. Organizations and co-operators involved first have to determine their Mission and Vision during their conscious activity. Defining a short, efficient mission is the essence of what goals and values guide an organization, community. Of course the mission is not a conception but only a conceptual approach, a starting point that is detailed after many issues, analysis and becomes a document assigning leading activities and goals. In this process the vision has a significant role because it defines a future desired state. We can reach this state and the goals behind it by a series of strategic and tactical decisions.

In the case of social problems it is also true that marketing is the art of opportunities, therefore opinions are also different about whether planning and conceptual activity is necessary or not. Planning inappropriately often happens when only reactions take place without real planning, when our everyday is determined by practical happenings and when we design the details without strategy and tactics. In the case of over-planning formal documents are made all the time. The plans are not realized consistently and organizations do not have progressive initiatives and projects. In the case of social marketing there are a number of design models and methods available that are mostly from corporate practice and consulting sources. In this case it is also important to find a bridge between the world of numbers and that of strategic creativity, but complicated planning can rule and hinder activities and events.

The first solution in planning social marketing and activities in international practice is the so-called modified six-phase model. (Gromberg 2006: 109).

Phase 1. Preparation, initiation of program and action

- Action: defining task, what to achieve in what time, what kind of problem(s) to solve, how much chance we have for that

Phase 2. Determining tasks, analysing situation

- Action: Positioning corporate identity, mission, action, identifying groups, existing communicational paths
- Feasibility analysis: collecting external and internal ideas, opinions, cooperation, opponents, weaknesses, opportunities, defining hypotheses, structural questions (Mind Mapping), SWOT, determining final task

Phase 3. Goals and strategy

- Action: defining marketing-goals, basic strategy, determining budget, time schedule, responsibilities.

Phase 4. Tactics and planning

- Action: planning tactic happenings, planning ideas creations, communication actions, criteria of controlling, action plan, brief preparation, tests, detailed cost plans, media planning, etc.

Phase 5. Preparing realization

- Action: contracting, production and distribution, preparing media and service contracts, operative planning, quality assurance.

Phase 6. Carrying out actions

Action: carrying out actions, monitoring, feedback, reactions to change

Another six-phase approach (CDCynergy 2012) is similar but introduces a more complex program planning process and focuses more on multi-organisational cooperation process, which I also prefer to do.

Phase 1. Describe and identify problem

- problem description, data evaluation, summarizing rationality
- analysing the content of strategic teams, organisations and individuals
- summarizing SWOT analysis

Phase 2. Carry out analysis and marketing research

- preparing research plan (confirming resources, analysing roles, evaluating mechanism, processes)
- research report (answers to the segmentation of the stakeholders, analysing advantages and barriers, competitive behaviour, etc.)

Phase 3. Create marketing strategy

- defining target group and determining behaviour and methodology, program resource, budget, intervention-mix,

Phase 4. Plan interventions

- detailed program, services, initiations, educating employees, detailed work plan and communication plan

Phase 5. Monitoring and evaluation planning

- determining indicators, monitoring methods, evaluation plan

Phase 6. Implementation and evaluation

- carrying out interventions, feedback to partners and stakeholders.

According to these approaches I defined a theoretical process that models the conscious, coordinated-handling steps of a social problem and a possible operation of social marketing based on the previously introduced planning objectives.

The first phase is a survey that aims to find an answer for the following questions: What problems do potentially involved organizations and individuals perceive? What kind of values do they share? How much are they involved and interested in the given problem? What can they do and what do they want to do? If we can answer the previous questions in connection with the

given problem an integrated social marketing strategy and program can be planned that will change the actions and behaviours towards the desired goals accepted by society. This plan has to be in connection with all the stakeholders.

In the third phase, we have to investigate the situation effects and changes of the given social program when we finish the program. Therefore the program can be successfully completed or continued after re-planning.

The process described above can be applied to solving small local and complex national problems. Of course for national problems we have to involve more members with significantly differentiated behaviour and different interests, and therefore re-planning should be carried out several times.

A basic feature of the model is that the stakeholder coordination, the so-called stakeholder management, approaches social marketing based on reasonable activity and planned behaviour theory.

The status quo of social marketing is permanently changing and developing and has become more precise and extended in the last decade. We can find the idea among the suggestions in the previous pages and in our model that problem solving and the activity of social marketing need more complex and integrated handling, with a number of members and different relationships. It is obvious that the processes of social marketing appear rather as special "network" stakeholder management. According to a wider concept, a stakeholder can be a group or individuals who are able to exert influence to reach organizational objectives or that are influenced by organizational objectives. According to a narrower concept, a stakeholder can be a group or individual upon whom the long-term operation of the organization depends (Freeman and Reed 1983. 91.p.).

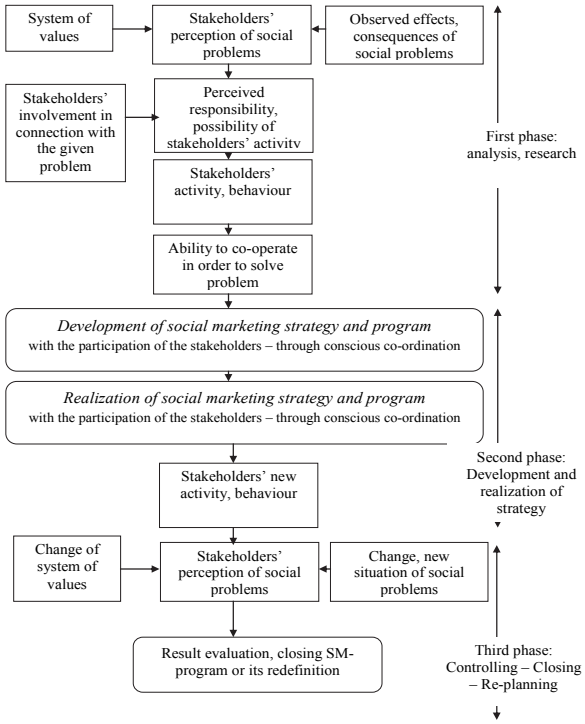

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Figure 1. Integrated Social Marketing – as an Analysis, Decision and Execution Process

We can meet the following typical stakeholders in the practice of social marketing:

- internal stakeholders- within for example a given non-profit organization
- those who are targeted by the social objective, performance, clients,
- private supporters,
- cooperative partners,
- regulatory organizations,
- the state (governmental, local governmental organizations)
- service providers
- consultants,
- coordinators,
- wide publicity,
- communication channels, media
- competitors, others with different interests.

Of course we encounter different roles among stakeholders, for example many of them are "clients", addressed by social marketing, and others are realisers, contributors of achieving the given social objectives, where every stakeholder has a particular coordinator or integrator role, whether it is a non-profit organization or an institution of the state. Therefore in our model social marketing is not only the marketing of non-profit organizations, although they have a significant role in and responsibility for solving social issues and problems. Many people are convinced that it is good when a program is represented by a non-governmental coordinator.

As we have seen, treating social marketing stakeholders as management begins with a significant analytical task that has the following steps:

- Identification, who those and in what aspect they have importance; formal and informal relationships regarding the given social issue or problem,
- determining priority, as a result of scarce resources and in order to handle social problems efficiently it is essential to determine the most influential criteria and on their basis to assign the relevant stakeholders and their role,
- stakeholder segmentation, its aim is to make it easier to handle certain target groups by systematization (status, political view, whether the organization is for or against it, how passive or active it is, how close the relationship is),
- understanding the stakeholder, to identify his motivations, expectations, his attitude toward the given issues and his relationship with organizations.

In order to develop the strategy and program of social marketing we have to answer the following questions: How do certain stakeholders perceive social problems? How much are they involved? What kinds of values make them act? What factors are barriers? Who are they and according to what kind of motivations do they act? What kind of role do they have? In what activities are they interested regarding the given problem?

An initial thesis can be formulated on the basis of the analysis: a finished model of integrated social marketing is an analytical, planning, decision, executive process. It attempts to create a value community involving every stakeholder in order to

solve a given social problem. It explores problem consciousness, involvement, responsibility and action motivation, stakeholder relationships, cooperation willingness and realizes conscious stakeholder management with the help of a well-coordinated strategy and programs.

RESULTS OF THE EMPIRICAL RESEARCH TESTING THE MODEL

In the following pages a partial analysis of an empirical survey of OTKA research is introduced in which we were trying to test some elements of my previously shown model. The empirical survey that is the part of the complex research program investigates the behaviour of the Hungarian population. Its aim is to explain how the Hungarian people and individuals try to participate in perceiving and handling social problems, their expected activity, and it also aims to explore the determinants of the activity in order to support the possibilities of an integrated social marketing approach. The survey was carried out by written questionnaire. The interviewers used a sample of 1603, where people 18 and above were asked, and it was representative according to sex, age, region and settlement. The survey was carried out in July and August of 2011.

In many areas of social problems studies were carried out in order to handle and decrease mainly environmental behaviour and to investigate environmentally conscious behaviour and activities. Their test models and solutions inspired us. Among other studies, we relied on Fishbein's and Ajzen's theory of reasoned action and the Ajzen type planned behaviour model as the two models concerns the development of conscious behaviour. In the theory of reasoned action Ajzen and Fishbein (1980) emphasize that attitudes do not have a direct effect on behaviour, only influence action intentions. Action intention will change depending several factors and gives relative significance to attitudes and subjective norm. The TORA model is the further developed variation of Theory of Planned Behaviour (Ajzen 1985; 1991) and it was used when our model was prepared.

Our research questions were the following:

- what social problems do people perceive, and how important they are?
- what is their individual involvement in connection with certain problems?
- what kind of individual and other organizational responsibility and/or opportunity do they feel in handling these problems?
- what are their information collection habits in connection with these questions?
- what kind of conscious behaviour or non-governmental organizational activity is characteristic when people handle problems?
- What kind of barriers to solving social problems do the respondents perceive?

The questions were about an initial social marketing model - as the development of a value community - and testing the partial operation of stakeholder management.

We investigated the influential factors of population responsibility, conscious decisions, behaviour and non-governmental organizational participation in value community. We were also interested in the relationship and correlation among the factors explored.

- Do the values declared influence the perceived social problems and their perceived importance?
- How closely related are the evaluation of problem severity and problem involvement?
- What is the relation among the importance of problems, personal involvement, personal responsibility and task evaluation?
- What are relationships among problem involvement, responsibility, activity and non-organizational governmental role?

The respondents had to name Hungary's most important social problems spontaneously when answering the first questions. Their answers are shown in Figure 2.

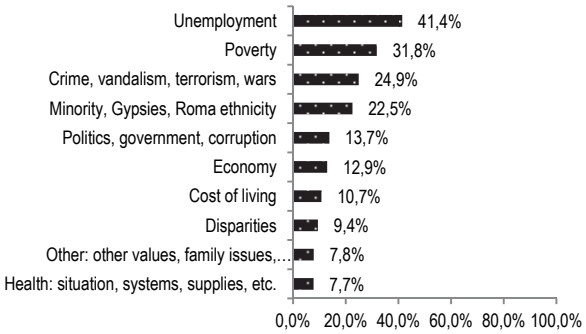

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Figure 2. Hungary's Most Important Social Problems with Spontaneous Mention

After the first ten issues like low birth-rate, environmental pollution, alcohol consumption, education, culture and the retirement system became more significant.

In the following question respondents had to evaluate the severity of the previous problems on a scale of 1-5, with five being most serious. The results had a significant relationship with the issues spontaneously mentioned.

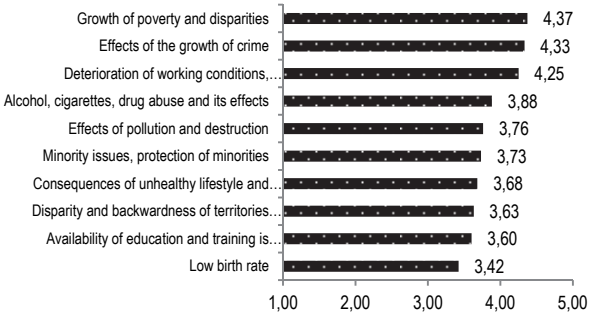

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Figure 3. Perception of Severity of Hungary's Social Problems

The 19 different problems mentioned can be reduced to six factors (Kaiser-Meyer-Olkin's Measure of Sampling Adequacy:

0.775; significance level of the Bartlett's Test of Sphericity: 0.000, Total Variance Explained: 60.9%). These factors are the following:

- external, directly not experienced problems (hunger, shortage of water, war, epidemics, ethnical religious conflicts)
- negative phenomena in connection with lifestyle (unhealthy way of life, alcohol, cigarette, drug problems, environment, crime, minority problems)
- factors of territorial and regional problems
- factors in connection with cultural values
- factors hindering individual ambitions (educational, training conditions, leisure problems)
- Two significant segments can be measured when evaluating the severity of social problems
- A problem-sensitive, pessimistic group (53.4%) where members are mainly older people (46-60 years), retired people, less educated, and inhabitants of poorer Hungarian regions.
- In the more optimistic segment, where problems are considered less severe (46.6%) mainly the following demographic groups appear: young people, more educated people, entrepreneurs, inhabitants of richer Hungarian regions.

The analysis of respondent involvement in the given problems shows interesting results. The nine problems with above 50% involvement are shown in Figure 4.

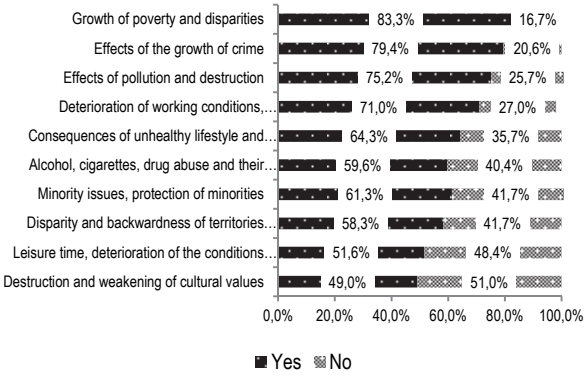

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Figure 4. Involvement in Social Problems

To investigate the values and priorities of the Hungarian population and the roles of certain values we used Kahle's scale (1983, List of Values (LOV). Results were inthe following order (Figure 5): security, sense of efficiency, belonging somewhere, self-respect, good relationships, self-realization, enjoying life, recognition, and excitement. It is an interesting relationship that the younger generation, people with secondary school qualifications, white collar workers, students, and those with big families consider values more important.

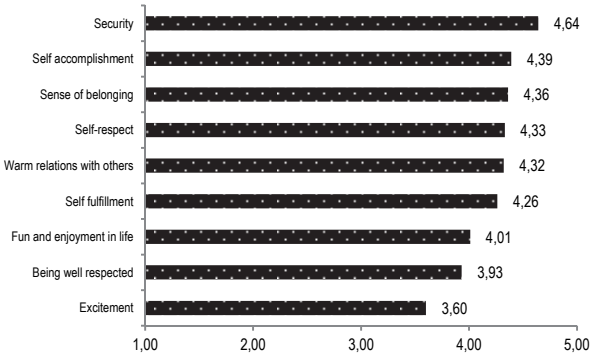

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Figure 5. Importance of Values Among the Respondents

Different groups were named by the respondents in connection with handling different social problems – this was the answer to the question of who has to solve the given problems. As seen in Figures 6 and 7, the respondents emphasize the role of state and its institutions, but individual responsibility also appears in their answers.

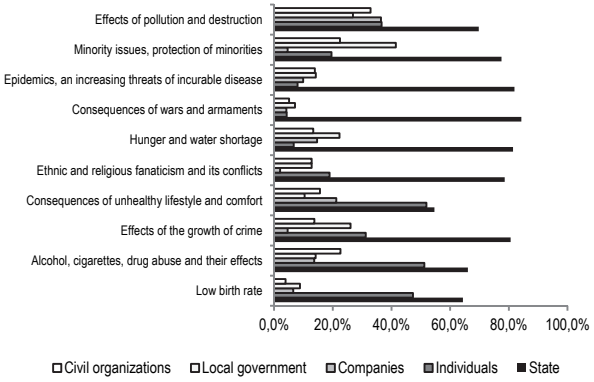

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Figure 6. Who Do You Expect to Solve the Problem?

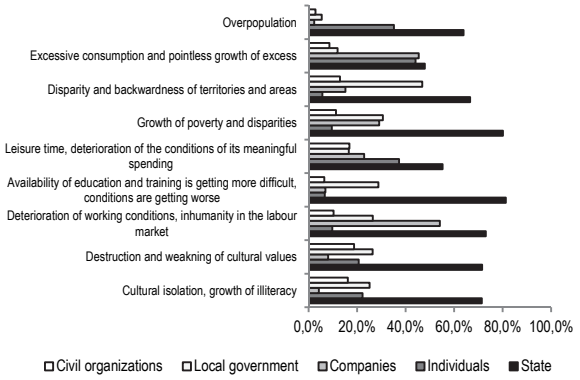

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Figure 7. Who Do You Expect to Solve the Problem?

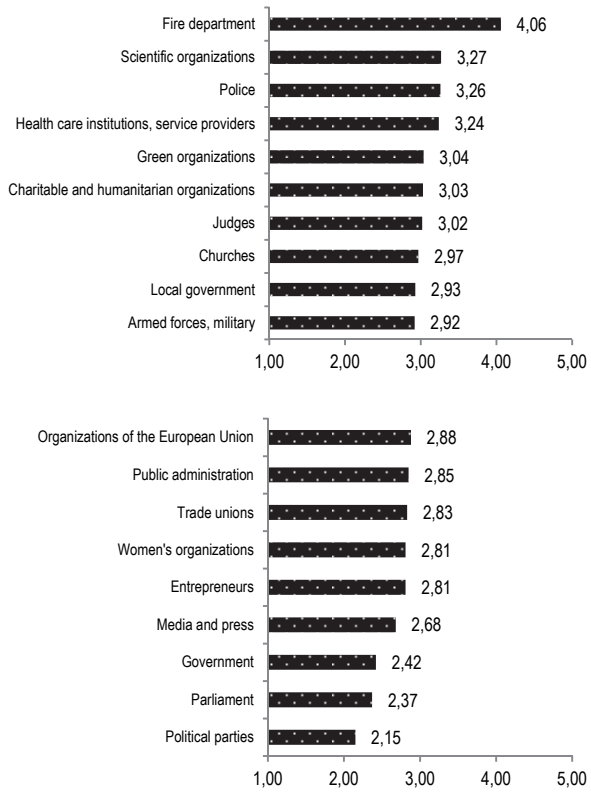

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Figure 8. How Much Do You Trust These Organizations?

Figure 8 shows responses to the question "How much do you trust these organizations". Respondents' confidence is not proportional to the tasks of the state and its organizations. Therefore, confidence in scientific and non-governmental organizations is significantly higher than that in in members of public administration, government and politics. This message also confirms intentions and possibilities in connection with the appreciation of the role of integrated social marketing and civil society.

Individuals' conscious role in handling social problems was measured by the activity of non-organizational and professional organizations (charitable, green, cultural, sport, etc.) dealing with these issues. Active activity was only measured in a small proportion of respondents, except for religious organizations, with 20%, as shown in Figure 9.

There is a segment of 20% within the Hungarian population. This segment had the attention of increasing conscious activity in solving social problems mainly in connection with sport, humanitarian, green, consumer, art and other professional organisations.

Hindering factors of solving social problems were always evaluated to have a significant role. The most important ones were, for example, the following: shortage of financial resources, power of business interests, lacking political intentions, lack of stakeholder's co-operation, and not determining responsible people and tasks. Individual irresponsibility was the last one. It is an interesting result that every variable is in one factor; however, there is also a segment with optimism, self-confidence and readiness to act. This segment evaluates the importance of barriers lower and can be characterized with taking responsibility in fewer cases.

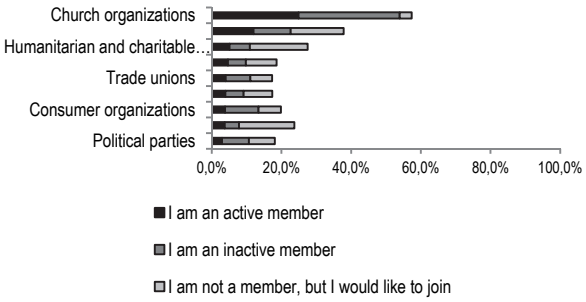

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Figure 9. Current and Planned Voluntary (civil) Organizational Membership

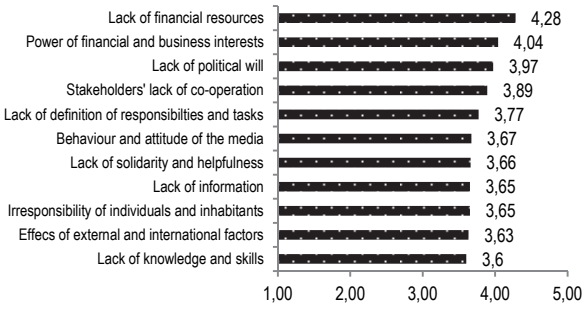

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Figure 10. The Barriers to Social Problems

On the basis of the answers above we set up our explanatory model in which we examined the relationships among certain factors and the connection explaining behaviour with the help of statistical methods. In all cases the different factors in the model were operationalized in form of sets of variables. At the same time their analysis required the reduction of these sets to a given variable. During data reduction we used several different methods depending on what variables the sets contain that can be measured on scales. Methods like these were principal component analysis, mean calculation, penetration calculation of different answer. A common feature of the methods is that the resulting variables can always be measured on a ratio scale. Therefore it is possible to characterize the stochastic relationship between two variables with the help of Pearson's simple linear correlation coefficient. The figure contains these correlation coefficients. Furthermore, the T-Tests analyzing the significance of these correlations showed in all cases a significant relationship between the pairs of variables examined.

A relatively weak positive relationship in the results confirms our assumption that the values declared, their importance, perceived problems and the judgement of their severity are correlated. The closest relationship, between direct involvement and the severity of the perceived problems, shows that respondents mainly deal with their own perceived problems and the handling of these problems. The higher the severity of the social problem is, the higher the

individual responsibility that can be perceived, with a growing intention to act for which no stronger non-governmental organizational activity is linked to this. One reason for this is that in Hungary the civil sphere is relatively weak, underdeveloped both in its coordination and tools and it is in strong relation with governmental institutes. The reasons for the relationship between direct involvement and hindering factors are the following: the level of individual responsibility and activity is weak and these are shifted off external factors.

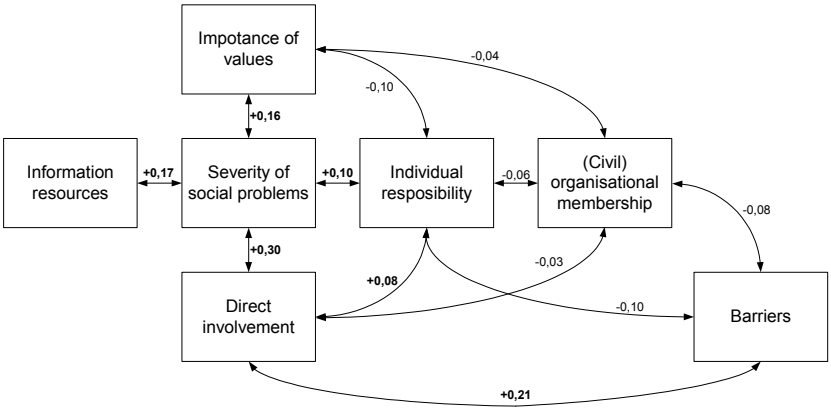

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Figure 11. The Model of Population's Social Sensitivity and Self-management Activity

We can measure a very low correlation among the extent of individual activity, the degree of individual responsibility and the judgement of roles of hindering factors. In our social marketing model we could prove a relatively low correlation among the following factors: importance of values, perceived severity of social problems, information collection habits, and between the factors of perceived severity of social problems and individual responsibility, as well as between direct involvement and the hindering factors.

When investigating the communicational tools and resources of information collection, among the most important ones of electronic and printed media, there also appeared personal (friend, acquaintance) media, the Internet and the workplace. In fewer cases active information collection in non-governmental organizations and professional events were also mentioned.

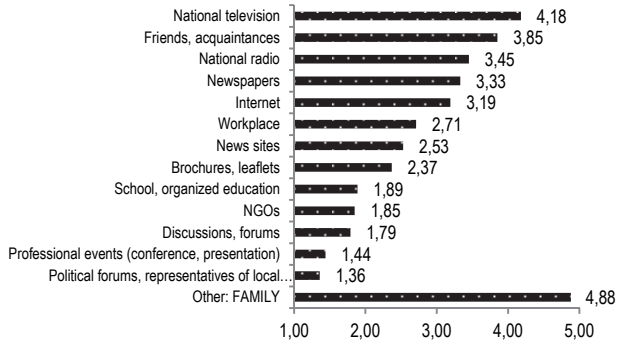

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Figure 12. Orientation and Information Resources on Social Issues, Problems and Their Solutions

Three segments for information gathering could be identified during cluster analysis. The first segment has low information intensity; the second group is rather passive, while the third one prefers active tools.

CONCLUSIONS

The empirical research results showed one part of an integrated social marketing model approach: the decision and activity behaviour of the population involved. In the first approach we could prove that values, personal involvement, collecting information habits all have effects on and a relationship with the evaluation of social problem importance, which can influence both personal responsibility and the willingness to act.

Our measurements show the present effects of the Hungarian social situation and the boundaries emerging from the underdevelopment of the civil sphere. At the same time the necessity for an integrated social marketing value strategy and stakeholder management orientation was highlighted, as well as its duties, opinions, behaviours, content direction of activity influence and the elements of marketing tools applicable.

The main limitation of the research is that there is no information on what is characteristic for the connection with other stakeholders of social marketing. The knowledge of this relationship is needed to have an integrated approach of social marketing and to develop the planning and realization process. It seems essential to carry out further element and parameter analyses within the present decision and behaviour model.

Acknowledgement

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Testing Autoregressive Models Through the Example of Northern Hungary[i]

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SUMMARY

The aim of this study is to model regional economic performance by the application of autoregressive models for given variables. The Cobb-Douglas (CD) production function gives the basis, which is extended by the gross value added produced by the labour force. My hypothesis is that if the current income level as dependent variable is determined by those current independent variables according to the CD function then it can be assumed that the time lags of both the dependent and independent variables also have an influence on the current value of the dependent variable. I test this hypothesis through the example of Northern Hungary in the period 1995-2008.

Keywords: regional convergence; divergence; development; econometrics
Journal of Economic Literature (JEL) codes: C51, O18, R11

INTRODUCTION

In the examination of economic performance, income level stands continously in the middle of the discipline of both theoretical and applied economics. Researchers are concerned about those factors which have an influence on income level. They seek to find to what extent and in what direction income level is affected, and to determine the variables that could be the driving forces of a territorial unit's economic development. In this study I give some interpretations to model regional income convergence applying time series econometric methods.

THEORETICAL OVERVIEW – GROWTH THEORIES, CONVERGENCE AND DIVERGENCE

Differences in income yield, employment, productivity and stage of development have increased and became more significant in today's ever more heterogenous European Union. Regional development and convergence are quite imbalanced in the enlarged EU and the development gap is not likely to tend to cease to exist among the regions. Therefore the process and driving forces of economic convergence, the phenomenon of catching-up and examination of its existence at regional level have been extensively analysed in the literature and widely criticised and confused. Theories related to economic growth, performance and convergence go back to the second half of the twentieth century. From the late 1950s to the mid -1980s the Solow-Swan exogenous growth model (Solow 1956; Swan 1956) dominated the literature. Growth was defined as increased stocks of capital goods. They realized that the role of technological change had become crucial, even more important than the accumulation of capital. Their model was based on the assumptions of the use of resources in an efficient way and diminsihing return on capital.

In the 1980s the endogenous growth theory gave a mathematical explanation to technological progress and revolutionized the literature on economic growth. Technology, which was formerly considered to be a public good and exogenous, became endogenous. Based on the endogenous theory a wide ranging set of empirical studies began spreading dealing with economic growth in many aspects and in a multi-dimensional way. New theories emerged related to development economics and dynamic growth economics as well.

Plenty of empirical studies revealing and unveiling the mystification of convergence processes were released beginning with Barro (1991), Barro and Sala-i-Martin (1995) and continuing with Coulombe and Lee (1995) Shioji (2001), and Rey and Montouri (1999), among many others, (see e.g. Le Gallo and Dall'erba, Martin, Römisch, etc.) find evidence of absolute and conditional β-convergence across US states, Japanese prefectures, Canadian provinces and European regions. Dedák and Dombi (2009) say that β-convergence can only be proved conditionally in all cases, because every economy converges to its own steady state and not to a common value, so the task of economic policy makers is to recognize this. Evidence of decreasing income disparities over long periods of time, or σ-convergence, has also been unveiled across regions, although it is more difficult to find it over shorter periods. For instance, Sala-i-Martin (1996) finds evidence of σ-convergence in several EU countries in a long-term analysis over five decades, while Boldrin and Canova

(2001) and Bouvet (2007) fail to uncover similar patterns for shorter term analysis ranging from one to three decades. Models of distributional dynamics do not find evidence of income polarization or convergence clubs across U.S. states (Quah 1996; Johnson 2000), but there is some evidence of two-club income convergence among European regions if the new member states are included (Fischer and Stumpner 2007, Fischer and Getis 2010).

Other studies emphasize different factors: Abramovitz (1986) says that prerequisites (e.g. ability to absorb new technology, attract capital and participate in global markets) must be in place in an economy before catch-up growth can occur, and this explains why there is still divergence in the world today. He emphasised the need for 'Social Capabilities' to benefit from catch-up growth. Gerschenkron (1962) emphasize the role of economic policy as opposed to exogenous factors and say that governments can substitute for missing prerequisites to trigger catch-up growth. Sokoloff and Engerman (2000) suggest that factor endowments are a central determinant of structural inequality that could influence institutional development in some countries. They explained that the United States and Canada started out as two of the poorest colonies in the New World but grew faster than other countries.

Williamson (1965) claims that national development creates increasing regional disparities in the early stages of development, while later on, development leads to regional convergence. Only afterwards will disparities decrease at the stage of welfare. Those effects that cause disparities can be neutralised by external intervention. Many authors underline (e.g. Henrekson et al., Cuaresma et al., Martin, Meyer etc.) that the so-called transitional Central and Eastern European (CEE) countries are now in the stage of dynamic development process, and therefore regional disparities are increasing parallel with the relatively high growth rate capacity. Ray (2004) emphasizes the historical legacies which have an influence on an economy's convergence process and which are often played down when convergence examinations are done.

EVOLUTION AND DIFFERENT INTERPRETATIONS OF THE COBB-DOUGLAS PRODUCTION FUNCTION

The CD production function (Cobb-Douglas 1928), being the first aggregate or economy-wide production function which had been developed, estimated and presented to the profession for analysis, marked a remarkable change in how economists and researchers approached macroeconomics.

According to the three-input CD function, economic performance is determined by the labour force, the stock of capital and the technological change:

$$Y = f(A,L,K) ,$$

where Y is the output, A is the improvement in techological processes, L expresses the labour force and K is the stock of capital.

The generalised three-input econometric form of the CD production function:

$$Y = AL^{\alpha} K^{\beta} \varepsilon ,$$

where α is the coefficient of L and β belongs to K and ε is the error term. If $\beta = 1 - \alpha$ rearranging $\alpha + \beta = 1$ the function is first-order homogeneous, which implies constant returns to scale, that is, if all inputs are scaled by a common factor greater than zero, output will be scaled by the same factor. If it is above 1, it has increasing returns to scale and vice versa.

Rearranging the equation into a logarithmic form, we get:

$$lgY = c + lgA + \alpha lgL + \beta lgK + \mu ,$$

where c is the constant term, Y, A, L, K are cross-sectional variables and μ is the sum of residuals.

Giving a time-series interpretation to equation by arranging the variables into their first difference, we obtain:

$$\Delta lgY_t = \alpha + \Delta lgA_{t-1} + \ldots + \Delta lgA_{t-p+1} + \varphi_1 \Delta lgL_{t-1} + \ldots + \varphi_{q-1} \Delta lgL_{t-q+1} + \omega_1 \Delta lgK_{t-1} + \omega_{r-1} \Delta lgK_{t-r+1} + \mu_t .$$

Augmented by the values of time lag of the dependent variable, the modified CD production function is:

$$\Delta lgY_t = \alpha + \rho lgY_{t-1} + + \gamma_1 \Delta lgY_{t-1} + \ldots + \gamma_{p-1} \Delta lgY_{t-p+1} + \Delta lgA_{t-1} + \ldots + \Delta lgA_{t-p+1} + \varphi_1 \Delta lgL_{t-1} + \ldots + \varphi_{q-1} \Delta lgL_{t-q+1} + \omega_1 \Delta lgK_{t-1} + \omega_{r-1} \Delta lgK_{t-r+1} + \mu_t .$$

The CD function gives the basis of earlier growth theories; the exogenous theory elaborated by Solow and by Swan and the different interpretations and directions of the endogenous theory have been developed from it.

The aim of this study is to model regional economic performance for the Northern Hungarian region during the period of 1995-2008 through the CD production function by giving some contributions to the measurement of it, where economic performance is determined by the stock of capital and level of employment and gross value added representing technological progress.

METHODOLOGY

Variables that are built into the model: per capita GDP in euro, measured at purchasing power parity (Y_t) which is the dependent variable. The explanatory variables are the level of employment, number of employed persons (X_t), and gross fixed capital formation in million euro (Z_t), with former expressing the labour force (L) and the latter the stock of capital (K) according to the CD production function. Gross value added in million euro (V_t) is also built into the model.

Preliminaries:

- multicollinearity: refers to that statistical phenomen in which the independent variables are highly correlated and indicates a strong linear relationship among them. Therefore it makes my Ordinary Least Squares (hereinafter referred to as OLS) estimation unreliable.
- autocorrelation and stationarity: working with time series data, the phenomenon of autocorrelation and stationarity have to be taken into account. It describes

the correlation between values of the process at different points in time, as a function of the two times or of the time difference. As current data show strong linearity, the presumption is that the time lags of variables are also highly correlated. The characteristics of the stochastical process of a theoretical time series can be estimated in the case of the independence of the time variable 't' so are constant in time. Time series having these characteristics are stationary, i.e. they do not have a trend effect. Their values fluctuate around an average value with a constant standard deviation: $\mu \sim N(0,\sigma^2)$, which means that the intensity of fluctuations does not vary over time and autocorrelation coefficients are constant, too, depending only on the distance between the variables (Rédey and Szentmiklósi, 2000). For time series OLS regression estimates I make the presumption that variables are stationary.

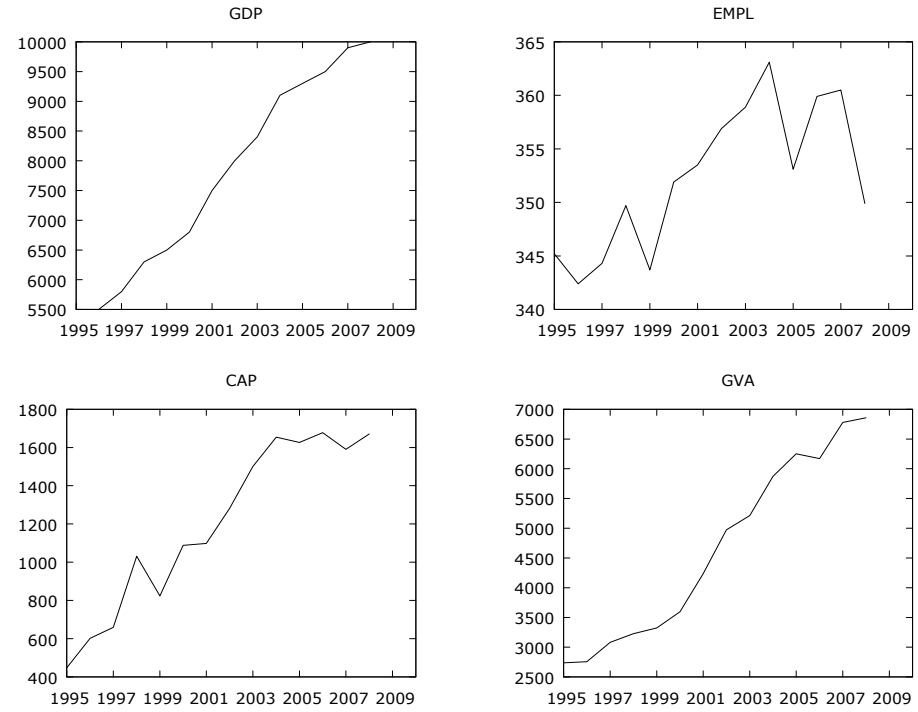
To filter out the problematics of multicollinearity, autocorrelation and non-stationarity, data have to be transformed firstly into a logarithmic form.

Table 1
Correlation Coefficients, Using Data
1995 – 2008 5%
Critical Value (two-tailed) = 0.5324 for n = 14

lgY_t	lgX_t	lgZ_t	lgV_t	
1.0000	0.5483	0.1945	0.7577	lgY_t
	1.0000	0.4889	0.2930	lgX_t
		1.0000	-0.0480	lgZ_t
			1.0000	lgV_t

Source: author's calculation

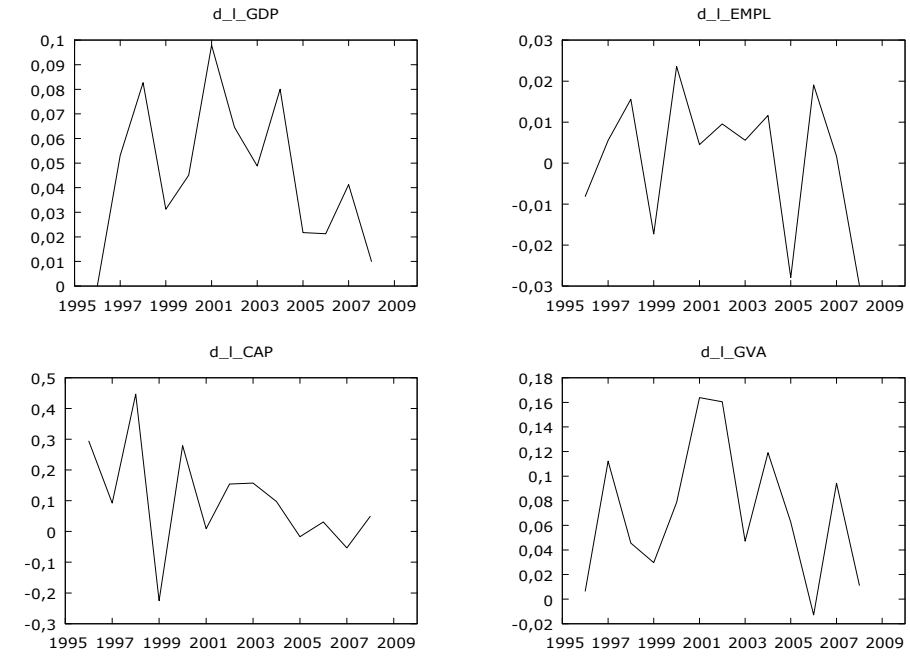
As can be seen in Table 1, due to data transformation the variables are less correlated and resist multicollinearity with one exception (GDP per capita and gross fixed capital formation).



Source: author's composition

Figure 1. Annual Changes of the Selected Variables in Northern Hungary 1995-2008

Most time series generally have one thing in common: they are characterised by an increasing or a decreasing trend contrary to it. In such cases time series have non stationarity regarding their expected value. Data have revealed (see Figure 1) that our time series are autocorrelated so the current values depend much on their time lags and have trend effects, too. Results of partial autoregressive correlation function have proved that. To use autoregressive models autocorrelation and non-stationarity have to be eliminated. Therefore the first differences of the selected log variables (Y_t-Y_{t-1}, …, V_t-V_{t-1}) have to be applied, so that time series will be first-order integrated (see Figure 2). If the first differences are not stationary the second differences have to be counted [$(Y_t - Y_{t-1}) - (Y_{t-1} - Y_{t-2})$, …, $(V_t - V_{t-1}) - (V_{t-1} - V_{t-2})$]; that is a second-order integrated time series. The former has data of n-1, the latter has data of n-2.



Source: author's calculation

Figure 2. First Differences of Log Variables

The characteristics of variables have to be examined separately. Results of cross-correlograms of the transformed stationary variables have significant values from zero. Testing the unit root by one-time autoregression model (AR1):

$$lgY_t = \alpha + \Phi lgY_{t-1} + \varepsilon_t,$$

where Y_t is the dependent variable, α is the constant, Φ is the regression coefficient, Y_{t-1} is the time lag of the dependent variable and ε is the error term. If Φ = 1, there is a unit root of Y. If $|\Phi| < 1$, Y is stationary.

The econometric form of transformed AR(1) can be obtained by applying the first difference of the examined variable in the case of the unit root:

$$\Delta lgY_t = \alpha + \rho lgY_{t-1} + \mu_t,$$

where ρ = Φ – 1, if Φ = 1 then ρ = 0, the value of ΔY_t fluctuates stochastically around α. The time series is stationary if -1 < Φ < 1 and -2 < ρ < 0. Unit root tests also have to be extended to all of the examined variables.

Variables are resistant to non-stationarity. As can be seen in Table 2, apart from one exception (employment) all of them are significant. In the AR(1) model the dependent variable is the first difference of the logarithmic variable, while the independent variable is the one-time lag of the dependent variable. Using first differences, autoregression models can be estimated.

Table 2
Results of Unit Root Tests Applying AR(1) Model:

Variables	Coefficient	std. error	t-ratio	p-value
lgY_{t-1}	0.0055	0.0009	5.793	0.0001 ***
lgX_{t-1}	0.0004	0.0005	0.823	0.4278
lgZ_{t-1}	0.0125	0.0043	2.889	0.0147 **
lgV_{t-1}	0.0089	0.0019	4.584	0.0008 ***

Source: author's calculation

PRACTICE – RESULTS OF AUTOREGRESSIVE, DISTRIBUTED LAG AND VECTOR AUTOREGRESSION MODELS[1]

Having got significant unit root tests (AR1) autoregressive models can be carried out. To assess which time lags – according to first differences of the dependent variable – (ΔY_{t-1}, ΔY_{t-1}, …, $\Delta Y_{t-1} + \Delta Y_{t-p+1}$) have affected significantly the current value, AR(p) models have to be tested. Generalised econometric form of AR(p) model:

$$\Delta lgY_t = \alpha + \rho lgY_{t-1} + \gamma_1 \Delta lgY_{t-1} + \ldots + \gamma_{p-1} \Delta lgY_{t-p+1} + \mu_t.$$

Results of AR(p) model are shown in Table 3.:

[1] *This chapter is mainly based on the works of Hans (1998) and Koop (2005).*

Table 3
Dependent Variable: ΔlgY

	Coefficient	Std. Error	t-ratio	p-value	
const	0.295086	0.0583473	5.0574	0.03694	**
lgY_{t-1}	-2.82773e-05	4.80862e-06	-5.8806	0.02772	**
ΔlgY_{t-1}	-0.315515	0.179091	-1.7618	0.22017	
ΔlgY_{t-2}	-0.336832	0.135832	-2.4798	0.13134	
ΔlgY_{t-3}	0.483484	0.121752	3.9711	0.05796	*
$u_{(t-3)}$	-0.291539	0.0599677	-4.8616	0.03980	**

R-squared	0.969071	Adjusted R-squared	0.907212
F(4, 2)	22.14781	P-value(F)	0.043667
rho	-0.579542	Durbin-Watson	2.161268

Source: author's calculation

The econometric form of the AR(3) model in the case of significant variables is:

$$\Delta lgY_t = \alpha + \rho lgY_{t-1} + \gamma_3 \Delta lgY_{t-3} + \mu_{t-3}\,.$$

According to my model estimation (see Table 3), at most three time lags have an effect on the current value and only the first and third lags are significant out of them. The explanatory value of the model is relatively high (90%) and the level of significance, too. Consequently, the dependent variable depends much on its lags.

If the second differences of the dependent variable are built into the model to explain the first differences, then it has to be assessed that all of the lags are significant, the p-value has decreased and the explanatory value of the model has increased and basically this tells us that none of the other variables are bypassed. Nevertheless, the first differences of explanatory variables have been proven to be resistant to non-stationarity and the unit root test so there is no reason to apply second differences in the following stages of analysis.

In order to apply autoregressive distributed lag (ADL) models, it has to be tested whether the current values of the selected variables influence the dependent variable.

Table 4
OLS Model, Using Observations 1996-2008 (T = 13)

	Coefficient	Std. Error	t-ratio	p-value	
const	0.0197378	0.00547868	3.6027	0.00572	***
ΔlgX	0.549461	0.18238	3.0127	0.01465	**
ΔlgZ	0.01223	0.0361253	0.3385	0.74272	
ΔlgV	0.346079	0.0632398	5.4725	0.00039	***

R-squared	0.694262	Adjusted R-squared	0.592350
F(3, 9)	20.61964	P-value(F)	0.000227
Durbin-Watson	2.260982	Akaike criterion	-63.14212
Schwarz criterion	-60.88232	Hannan-Quinn	-63.60661

Source: author's calculation

The results in Table 4 indicate that the explanatory variables influence the explained variable significantly apart from the gross fixed capital formation, so ADL models can be carried out by making the hypothesis that if the current value of the dependent variable is affected by those of the independent variables then it can be assessed that time lags of them and those of the dependent variable also influence the current value.

The generalised econometric form of the ADL(p,q) model is:

$$lgY_t = \alpha + \Phi_1 lgY_{t-1} + \ldots + \Phi_p lgY_{t-p} + \beta_0 lgX_t + \beta_1 lgX_{t-1} + \ldots + \beta_q lgX_{t-q} + \mu_{t..}$$

The extended form of ADL(p,q,r,s) model in case of first differences being built in the model is:

$$\Delta lgY_t = \alpha + \rho lgY_{t-1} + \gamma_1 \Delta lgY_{t-1} + \ldots + \gamma_{p-1} \Delta lgY_{t-p+1} + \omega \Delta lgX_t + \omega_1 \Delta lgX_{t-1} + \ldots + \omega_{q-1} \Delta lgX_{t-q+1} + \psi \Delta lgZ_t + \psi_1 \Delta lgZ_{t-1} + \ldots + \psi_{r-1} \Delta lgZ_{t-r+1} + \varphi \Delta lgV_t + \varphi_1 \Delta lgV_{t-1} + \ldots + \varphi_{s-1} \Delta lgV_{t-s+1} + \mu_t\,.$$

The econometric form of ADL1(p,q,r,s) model in case of significant variables:

$$\Delta lgY_t = \alpha + \omega \Delta lgX_t + \omega_1 \Delta lgX_{t-1} + \psi \Delta lgZ_t + \psi_1 \Delta lgZ_{t-1} + \varphi \Delta lgV_t + \mu_t\,.$$

Table 5
OLS Model, Using Observations 1997-2008 (T = 12)

	Coefficient	Std. Error	t-ratio	p-value	
const	0.0221442	0.00438667	5.0481	0.00724	***
ΔlgX	0.7244	0.214509	3.3770	0.02786	**
ΔlgX_{t-1}	0.685192	0.315224	2.1737	0.09542	*
ΔlgZ	0.0668644	0.0167386	3.9946	0.01620	**
ΔlgZ_{t-1}	0.0546836	0.0143399	3.8134	0.01889	**
ΔlgV	0.175832	0.0475507	3.6978	0.02088	**
ΔlgV_{t-1}	0.0130191	0.0911723	0.1428	0.89335	
ΔlgY_{t-1}	-0.0390064	0.151388	-0.2577	0.80938	

R-squared	0.917633	Adjusted R-squared	0.773491
F(7, 4)	73.18944	P-value(F)	0.000467
Durbin's h	-1.897864	Akaike criterion	-67.41489
Schwarz criterion	-63.53564	Hannan-Quinn	-68.85113

Source: author's calculation

The dependent variable is explained up to 77%, excluding the one-time lag of it and the gross value added according to Table 5. The current values and one-time lags of the employment level and the stock of capital influence the dependent value significantly, in accordance with the CD production function. Assuming that the ADL(1) model has not been affected by the lag of the dependent value, therefore it was excluded and only the independent variables were built into the model.

The generalised econometric form of the ADL2(p,q,r,s) model in case of significant variables is:

$$\Delta lgY_t = \alpha + \omega_1 \Delta lgX_{t-1} + \psi \Delta lgZ_t + \psi_1 \Delta lgZ_{t-1} + \psi_{r-2} \Delta lgZ_{t-2} + \varphi \Delta lgV_t + \varphi_1 \Delta lgV_{t-1} + \varphi_{s-2} \Delta lgV_{t-2} + \mu_t\,.$$

Table 6
OLS Model, Using Observations 1998-2008 (T = 11)

	Coefficient	Std. Error	t-ratio	p-value	
const	0.0183745	0.00140925	13.0385	0.04873	**
ΔlgX	-0.0770933	0.0629102	-1.2254	0.43573	
ΔlgX_{t-1}	-0.668161	0.0808796	-8.2612	0.07669	*
ΔlgX_{t-2}	-0.0538093	0.0452187	-1.1900	0.44491	
ΔlgZ	0.150566	0.0058054	25.9355	0.02453	**
ΔlgZ_{t-1}	0.123795	0.00414638	29.8562	0.02131	**
ΔlgZ_{t-2}	-0.0432942	0.00303391	-14.2701	0.04454	**
ΔlgV	0.370086	0.0142107	26.0427	0.02443	**
ΔlgV_{t-1}	-0.134287	0.0128095	-10.4834	0.06054	*
ΔlgV_{t-2}	0.00304672	0.00844948	0.3606	0.77969	

R-squared	0.998251	Adjusted R-squared	0.982506
F(9, 1)	2904.432	P-value(F)	0.014399
Durbin-Watson	2.154165	Akaike criterion	-97.89332
Schwarz criterion	-93.91437	Hannan-Quinn	-100.4015

Source: author's calculation

As can be seen in Table 6, the two-time-lag model is proved to be more significant than the ADL(1) model and better explains the dependent value. It is the stock of capital whose values (both the current and lags) mostly influence the current value of income level: a 1% raise in capital at time 't' increases the income level by 0.15% and the one-time lag by 0.12%, too. Out of the other variables the gross value added is the most dominant: a 1% change in it raises the income level by 0.37%, though the one time lag lowers it by -0.13%. In addition the one-time lag value of the employment level has significant effect on the dependent variable but with a negative sign: a 1% increase at time 't-1' will reduce the income level by 0.66% at time 't'.

In order to prove that it is the income level which is the dependent variable and that the results of the ADL model can be accepted, it has to be tested whether X, Z and V are the Granger causes of Y. Therefore the vector autoregression (VAR) model has to be applied. The VAR model is the generalised form of the AR model or analysis of more than one variable. In a VAR model more than one dependent variable exists, so that at least two equations are employed to carry out OLS estimation, in which all of the variables and their time lags that are stationary are built in as explanatory variables. In case of more than two time lags the length will be the same (p = q). The ADL model gives the basis of the VAR model to assess whether X is the Granger cause of Y or vice versa. In our sample variables are in their transformed forms because of stationarity. Using correlation matrix endogenous variables are Y, X and Z, while V remains exogenous.

The econometric forms of VAR(p,q,r,s) models are:

$$\Delta lgY_t = \alpha_1 + \lambda_1\mu_{t-1} + \gamma_{11}\Delta lgY_{t-1} + \ldots + \gamma_{1p}\Delta lgY_{t-p} + \omega_{11}\Delta lgX_{t-1} + \ldots + \omega_{1q}\Delta lgX_{t-q} + \psi_{11}\Delta lgZ_{t-1} + \ldots + \psi_{1r}\Delta lgZ_{t-r} + \varphi_{11}\Delta lgV_{t-1} + \ldots + \varphi_{1s}\Delta lgV_{t-s} + \mu_{1t},$$

$$\Delta lgX_t = \alpha_2 + \lambda_2\mu_{t-1} + \gamma_{21}\Delta lgX_{t-1} + \ldots + \gamma_{2p}\Delta lgY_{t-p} + \omega_{21}\Delta lgX_{t-1} + \ldots + \omega_{2q}\Delta lgX_{t-q} + \psi_{21}\Delta lgZ_{t-1} + \ldots + \psi_{2r}\Delta lgZ_{t-r} + \varphi_{21}\Delta lgV_{t-1} + \ldots + \varphi_{2s}\Delta lgV_{t-s} + \mu_{2t},$$

$$\Delta lgZ_t = \alpha_3 + \lambda_3\mu_{t-1} + \gamma_{31}\Delta lgX_{t-1} + \ldots + \gamma_{3p}\Delta lgY_{t-p} + \omega_{31}\Delta lgX_{t-1} + \ldots + \omega_{3q}\Delta lgX_{t-q} + \psi_{31}\Delta lgZ_{t-1} + \ldots + \psi_{3r}\Delta lgZ_{t-r} + \varphi_{31}\Delta lgV_{t-1} + \ldots + \varphi_{3s}\Delta lgV_{t-s} + \mu_{3t},$$

$$\Delta lgV_t = \alpha_4 + \lambda_4\mu_{t-1} + \gamma_{41}\Delta lgX_{t-1} + \ldots + \gamma_{4p}\Delta lgY_{t-p} + \omega_{41}\Delta lgX_{t-1} + \ldots + \omega_{4q}\Delta lgX_{t-q} + \psi_{41}\Delta lgZ_{t-1} + \ldots + \psi_{4r}\Delta lgZ_{t-r} + \varphi_{41}\Delta lgV_{t-1} + \ldots + \varphi_{4s}\Delta lgV_{t-s} + \mu_{4t},$$

$$\mu_{t-1} = \Delta lgY_{t-1} - \alpha - \beta\Delta lgX_{t-1}.$$

VAR(2) model has not been proved to be significant while testing it, therefore the model of one-time-lag VAR model has to be applied.

Table 7
Results of VAR(1) Model

	ΔlgY		ΔlgV		ΔlgX	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
const	0.0342302	0.0142 **	0.0674440	0.0660 *	0.000313545	0.9736
ΔlgY_{t-1}	0.0608490	0.8553	0.246983	0.8064	0.0778960	0.7256
ΔlgV_{t-1}	-0.126034	0.3796	-0.291686	0.4287	-0.121156	0.2808
ΔlgX_{t-1}	0.744297	0.1229	1.85691	0.0955 *	-0.369133	0.2550
ΔlgZ_t	0.141357	0.0060 ***	0.121339	0.3715	0.0733805	0.0414 **
ΔlgZ_{t-1}	0.0702439	0.0316 **	0.0134935	0.8873	0.0182051	0.4921

Source: author's calculation

As can be seen in Table 7, out of the variables it is the current value of the gross fixed capital formation and its lag which positively influence the dependent variable: a 1% raise in the gross fixed capital causes a 0.14% increase in Y and its lag causes a change of 0.07%. Examining gross value added the one-time lag of employment means the Granger cause of V: 1% improvement in one-time lag of employment (X_{t-1}) raises the current value of gross value added (V) by 1.8%. In the case of employment the current value of the gross fixed capital formation affects it positively: to 1% increase in the actual value of employment a 0.07% raise is needed.

CONCLUSIONS

This paper seeks to explain regional income level convergence by applying autoregressive models with the aim of making some contributions to applied economics in the aspect of time series econometrical methods through the example of Northern Hungary. Having examined the preliminaries, autoregressive models could be carried out. I applied the CD function in a transformed way to model income level and proved that the current value of the dependent variable is mostly affected by its one-time lag time lags and those of the independent variables. Through the different interpretaions of autoregression models, results revealed that the income level has not been equally significantly affected by the time lags, but by the current values of the explanatory variables (employment, gross fixed capital formation) and their one-time lags (the employment, gross fixed capital formation plus gross value added). The VAR model has also pointed out that the causality might not be one-way.

As future prospects – regarding the mid-point of further research, it could be the spatial extension of AR, VAR and VECM models, which can be carried out to examine the territorial effects of one unit to another; this could be followed by a panel data analysis extension in a multidimensional way which covers different variables in different units with a time series interpretation at the same time.

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Cultural Perspectives of Corrupt Behaviour – Application of Trompenaars Model for Corruption

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SUMMARY

This article examines the impact of cultural factors on corruption. It is always difficult to investigate this complex phenomenon. Moreover, we run into more questions and pitfalls when we would like to understand the influence of a multilateral phenomenon such as culture. I build on the work of Tsakumis et al. (2007) by conducting further empirical analysis of the relationship between cultural dimensions and corruption across countries using multiple measures of corruption to gain additional evidence on the subject (the impact of Trompenaarsian dimensions on corruption across countries). Based on data from 41 countries, and after controlling for economic development, the regression results indicate that the higher the level of collectivism the higher the level of diffusion, and that the lower the level of achievement, the higher is the level of tax evasion across countries. Managers should find the results of this study useful in assessing the likelihood of corruption from cultural perspectives, and in developing tax reform policies to reduce tax evasion and corruption.
Keywords: culture, corruption, Trompenaars model, CPI
Journal of Economic Literature (JEL) code: D73, H26, M20

INTRODUCTION

Tax evasion[1] and corruption are widespread phenomena and continue to be a problem for many countries. As Tsakumis et. al (2007) mention (citing Greek datas), for example, Greece's underground economy is estimated to equal approximately 40% of its GDP—the largest in the European Union. Italian tax authorities estimate that 15% of all economic activity goes unreported.[2] In the United States, estimates of lost tax revenues for 2001 were as high as $353 billion. Of this $353 billion, intentional underreporting of income represented anywhere from $250 to $292 billion (IRS, 2005).

Some form of penalty usually is used as a means to control tax evasion within countries. The penalties most commonly used in the United States include fines and imprisonment. Even though penalties and audits exist, tax evasion continues to pose a significant threat to countries' economies by placing a strain on a country's budget through lost revenues. Many studies have examined the effects of varying penalties, audit rates, and other variables on tax evasion (Porcano, 1988); fewer empirical studies have examined tax compliance levels from an international perspective (Riahi-Belkaoui, 2004; Richardson, 2006). Only Alm and Torgler (2006) investigate the relation of culture to tax morals for a "large" number (16) of countries.

This study further explores the role that national culture might play in explaining countries' tax evasion behaviour. Culture is a multivariate concept, and this is the first study to investigate which cultural framework[3] is the best to explain international corruption diversity; that is, it uses Trompenaars' 7 cultural dimensions as measures of culture and analyzes their relation to corruption for 41 countries in various geographic areas.

[1] *As noted by Sandmo (2005), tax evasion is a violation of tax law whereby the taxpayer refrains from reporting income which is, in principle, taxable. Tax avoidance is within the legal framework whereby the taxpayer takes advantage of tax provisions to minimize the tax liability. Also, it is important to distinguish between tax evasion and corruption, which are very different concepts. Tax evasion involves hiding the real value of a legal transaction to avoid fiscal (i.e., tax) liability, while corruption involves a transaction in which one agent typically pays a sum of money or performs a service in exchange for an illicit act by a public official (Andreoni et al. 1998). Corruption is commonly defined as the misuse or violation of power.*
[2] *The IRS (2005) updated its estimates of the tax gap for 2001 to $343 billion as the difference between what taxpayers should have paid and what they actually paid on a timely basis.*
[3] *In this paper, I will show only the results of Trompenaars model.*

Therefore, the purpose of this study is to explore the extent to which international differences in corruption can be explained by differences in national culture, as proposed by Trompenaars (1993). Trompenaars and Hampden-Turner defined a different set of dimensions during their cross-cultural studies, using a database containing more than 30,000 survey results. These dimensions are universalism vs. particularism, individualism vs. communitarianism, achievement vs. ascription, neutral vs. affective, specific vs. diffuse, human-nature relationship, human-time relationship (Trompenaars and Hampden-Turner, 1997).

Later, we can see that these cultural frameworks appear to be relevant in explaining corruption levels. In the case of Trompenaars' model, higher (lower) collectivism and diffuse dimensions are associated with higher (lower) corruption levels across countries. I also found a controversial correlation between achievement and corruption.

CULTURE AND CULTURAL DIMENSIONS

Culture has been defined in several different ways. Some of the commonly used definitions of culture are presented in this section. Some define culture as a set of values that an individual grows up with. They add that it is a combination of personal values and morals as well as the society's influence on the individual in his/her growing years. Hence, it is the shared way groups of people understand and interpret the world. They conclude that culture influences the ways in which a person perceives and reacts to certain situations.

The anthropological term designates those aspects of the total human environment, tangible and intangible, which have been created by men. A "culture" refers to the distinctive way of life of a group of people, their complete "design for a living". Culture seems to be the master concept of American anthropologists.

Most anthropologists would basically agree with Herskovits's propositions on the theory of culture (Herskovits, 1948):

1. Culture is learned.
2. Culture is derived from the biological, environmental, psychological, and historical components of human existence.
3. Culture is structured.
4. Culture is divided into aspects.
5. Culture is dynamic.
6. Culture is variable.
7. Culture exhibits regularities that permit its analysis by the method of science.
8. Culture is the instrument whereby the individual adjusts to his total setting, and gains the means for creative expression.

Kroeber and Kluckhohn (1952) suggested another definition:

Culture consists of patterns, explicit and implicit of and for behaviour acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiment in artefacts; the essential core of culture consists of traditional (i.e., historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, on the other, as conditioning elements in a future action.

Trompenaars underlines the collective nature of culture. Trompenaars' brief and well-known definition is the following: 'culture is the way in which a group of people solves problems' (Trompenaars 1993: 6). Trompenaars' cultural dimensions are summarized as follows:

- Universalism versus particularism (T_UNI): The first dimension defines how people judge the behaviours of their colleagues. People from universalistic cultures focus more on rules, are more precise when defining contracts and tend to define global standards for company policies and human resources practices. Within more particularistic national cultures, the focus is more on the relationships; contracts can be adapted to satisfy new requirements in specific situations and local variations of company and human resources policies are created to adapt to different requirements.
- Individualism and Communitarianism (T_COL): This dimension classifies countries according to the balance between the individual and group interests. Generally, team members with individualist mind-sets see the improvements to their groups as the means to achieve their own objectives. By contrast, the team members from communitarian cultures see the improvements to individual capacities as a step towards the group prosperity.
- Achievement versus ascription (T_ACH): This dimension, presented in Trompenaars' studies, is very similar to Hofstede's power distance concept (Hofstede, 1980). People from achievement-oriented countries respect their colleagues based on previous achievements and the demonstration of knowledge, and show their job titles only when relevant. On the other hand, people from ascription-oriented cultures use their titles extensively and usually respect their superiors in the hierarchy.
- Neutral versus affective (T_NEU): According to Trompenaars, people from neutral cultures admire cool and self-possessed conduct and control their feelings, which can suddenly explode during stressful periods. When working with stakeholders from neutral countries you may consider avoiding warm, expressive or enthusiastic behaviours, prepare beforehand, concentrate on the topics being discussed and look carefully for small cues showing that the person is angry or pleased. People from cultures high on affectivity use all forms of gesturing, smiling and body language to openly voice their feelings, and admire heated, vital and animated expressions.
- Specific versus diffuse (T_DIFF): Trompenaars researched differences in how people engage colleagues in specific or multiple areas of their lives, classifying the results into two groups: people from more specific-oriented cultures tend to keep private

and business agendas separate, having a completely different relation of authority in each social group. In diffuse-oriented countries, the authority level at work can reflect into social areas, and employees can adopt a subordinated attitude when meeting their managers outside office hours.

- Human-nature relationship (internal vs external control) (T_NAT): Trompenaars shows how people from different countries relate to their natural environment and changes. Global project stakeholders from internal-oriented cultures may show a more dominant attitude, focus on their own functions and groups and be uncomfortable in change situations. Stakeholders from external-oriented cultures are generally more flexible and willing to compromise, valuing harmony and focusing on their colleagues, being more comfortable with change.
- Human-time relationship (T_TIME): Trompenaars found that different cultures assign diverse meanings to the past, present and future. People in past-oriented cultures tend to show respect for ancestors and older people and frequently put things in a traditional or historic context. People in present-oriented cultures enjoy the activities of the moment and present relationships. People from future-oriented cultures enjoy discussing prospects, potentials and future achievement.

CORRUPTION

Corruption, as with many ethical concepts, is very difficult to define in a universally acceptable fashion. While Webster's Dictionary defines corruption as "bribery or similar dishonest dealings," what may be classified as corruption to some may not be classified as corruption by others. For example, bribery and political favouritism may be considered corruption and unacceptable by some but an acceptable business practice by others (Jain 1998). Scholarly interest in corruption is growing fast, both in terms of theoretical treatment and empirical research. Comprehensive reviews of the literature are offered in Husted (1999).

Formal institutions cannot adequately explain the distinct levels of tax evasion and corruption in different countries. In addition, since taxes are a windfall burden, it should not matter to a citizen whether the government delivers the services promised or not, or whether or not other people pay. If we move a step further, we find the public choice approach, which introduces public goods as another aspect of formal institutions. The outcome is, however, that it is generally still rational for a citizen to completely free ride and not pay taxes, no matter what the government and other citizens do. As a result, the public choice approach does not solve the puzzle either. We can broaden the analysis by introducing the level of trust, both between citizens and the government and among the citizens themselves, as variables to explain tax evasion and corruption.

SAMPLE

The sample for this study consists of 41 countries (see Table 1) . It encompasses both developed and developing countries, and a mixture of countries distinguished by language, culture, and geography. The countries included in the sample are diverse. I chose countries that have all needed scores available: cultural dimensions, CPI, control variables. Data for this study are collected from a broad range of public sources. I retrieved the data from World Bank's database, Hofstede's database, and other websites (such as www.nationmaster.com). I found 41 countries that can fulfill these requirements.

Table 1
List of Sample Countries (n=41)

Argentina	Hungary	Portugal
Australia	India	Russia
Austria	Indonesia	Singapore
Brazil	Ireland	South Africa
Canada	Italy	Spain
China	Israel	Sweden
Czech Republic	Japan	Switzerland
Denmark	Malaysia	Taiwan
Egypt	Mexico	Thailand
Finland	Netherlands	Turkey
France	New Zealand	UK
Germany	Nigeria	USA
Greece	Philippines	Venezuela
Hong Kong	Poland	

HYPOTHESES

Control Variable

The level of economic development in a country may influence its level of corruption. I use the HDI factor[4] and GI factor by Kaufmann et. al (1999a; 1999b), and taxes on goods and services by the World Bank (E_TOGS) as control variables. Tsakumis et al. (2007) expected a negative relation between the level of economic development and the level of tax evasion in a country.[5] I expect a negative relation between the HDI factor and the level of corruption; positive relation between E_TOGS and the level of corruption – more taxes, higher corruption; and

[4] *The Human Development Index (HDI) is a composite statistic used to rank countries by level of human development. The HDI is a comparative measure of life expectancy, literacy, education, and standards of living of a country. It is a standard means of measuring well-being, especially child welfare. It is also used to distinguish whether the country is a developed, a developing or an under-developed country, and also to measure the impact of economic policies on quality of life.*

[5] *This is a limitation of Tsakumis et al.'s work (2007) because we could improve the robustness of model if we included such variables as Richardson (2008) did: legal enforcement (LEGAL), trust in government (TGOV), and religiosity (RELIG).*

positive relation between the GI factor (the description of a government's performance and bureaucracy) and the level of corruption.

Hypothesis 1a. The higher the HDI factor in a country, the lower the level of corruption in that country.

Hypothesis 1b. The higher the E_TOGS in a country, the higher the level of corruption in that country.

Hypothesis 1c. The higher the GI factor in a country, the higher the level of corruption in that country.

Cultural variables

The primary variables of interest are collectivism (T_COL), diffusion (T_DIFF), and achievement (T_ACH). My hypotheses predict:

Hypothesis 2a. The higher the T_COL in a country, the higher the level of corruption in that country.

Hypothesis 2b. The higher the T_DIFF in a country, the higher the level of corruption in that country.

Hypothesis 2c. The higher the T_ACH in a country, the lower the level of corruption in that country.

RESEARCH DESIGN

I modified the research design of Tsakumis et al. (2007)[6]. Cultural frameworks provide index scores for the seven national cultural dimensions for the 41 countries. Thus, this study investigates corruption levels across 41 countries. It analyzes the relation of the cultural dimensions to the level of corruption.

Dependent Variable

My hypotheses relate to the impact of national cultural dimensions on corruption levels across countries. Actual corruption is unknown and impossible to determine; thus, studies on corruption use surrogate measures for actual corruption. Many studies use hypothetical corruption or perceptions of corruption. Some use government estimates of corruption. No single measure has been shown to be better than any other measure.

I use the Corruption Perception Index (CPI) provided by Transparency International since 1995. Although it is difficult to agree on a precise definition, there is consensus that corruption refers to acts in which the power of public office is used for personal gain in a manner that contravenes the rules of the game (Jain, 2001). I updated the data and looked for scores for each sample country. I used data of 1995-2010. Table 2 lists the sample countries along with their mean CPI scores over that period. These countries are located in all parts of the globe, range from large to small, and include both developed and developing nations. The three highest scores (i.e., the least corrupt countries) are Denmark, New Zealand, and Sweden. Nigeria, Indonesia, and Venezuela are the most corrupt.

Table 2
Corruption Levels for Sample Countries

Country	CPI	Country	CPI	Country	CPI
Argentina	3.0975	Hungary	4.9850	Portugal	6.3538
Australia	8.6788	India	2.9725	Russia	2.3900
Austria	7.9019	Indonesia	2.2256	Singapore	9.1888
Brazil	3.6513	Ireland	7.7375	South Africa	4.8969
Canada	8.8456	Italy	4.6400	Spain	6.3475
China	3.2481	Israel	6.7320	Sweden	9.2375
Czech Republic	4.5980	Japan	6.9900	Switzerland	8.8269
Denmark	9.5431	Malaysia	5.0069	Taiwan	6.1
Egypt	3.1386	Mexico	3.3713	Thailand	3.3113
Finland	9.4844	Netherlands	8.8519	Turkey	3.7219
France	6.9013	New Zealand	9.4381	UK	8.3831
Germany	7.9088	Nigeria	1.7767	USA	7.5100
Greece	4.4625	Philippines	2.7131	Venezuela	2.3706
Hong Kong	7.8944	Poland	4.3300		

Source: http://www.transparency.org

Independent Variables

The independent variables are denoted in this study by Trompenaars's cultural dimensions and in addition, control variables (HDI factor, GI factor, and E_TOGS). The cultural dimensions are all measured in terms of country-based scores.

Model Specification

The standard model consists of cultural variables and control variables. I use only one cultural framework for a model. According to the hypotheses, I constructed a model.

[6] *In the study, authors investigate the influence of national culture on tax compliance levels across 50 countries. Using Hofstede's (1980) cultural framework as a basis for our hypotheses, they find that a noncompliant country's profile is characterized by high uncertainty avoidance, low individualism, low masculinity, and high power distance. Their results have implications for both research and practice. This is the first study to employ Hofstede's cultural framework as an explanator of international tax compliance diversity and serves as the starting point for the development of an international tax compliance framework. Tax policy implications also are addressed.*

To test my hypotheses, I estimate the following model for Trompenaars' model:

$$CPI_i = a_0 + a_1 T\_UNI_i + a_2 T\_COL_i + a_3 T\_DIFF_i + a_4 T\_NEU_i + a_5 T\_ACH_i + a_6 T\_TIME_i + a_7 T\_NAT_i + a_8 HDI_i + a_9 GI_i + a_{10} E\_TOGS_i + e_i \quad (1)$$

RESULTS

Descriptive Statistics

Table 3 presents descriptive statistics (analysed by using SPSS) for the full sample of 41 countries. Considerable diversity exists with regard to corruption levels across countries. There is considerable variability in the independent variables of primary interest.

Table 3
Descriptive Statistics

	N	Min	Max	Mean	Std. Deviation
CPI	40	1.78	9.54	5.8416	2.53918
T_UNI	41	17.00	90.00	56.3659	17.11543
T_COL	41	10.00	90.00	51.7561	19.08636
T_DIFF	41	10.00	90.00	45.3659	20.42273
T_NEU	41	10.00	80.00	51.3415	13.73428
T_ACH	41	16.00	95.00	56.4634	16.97660
T_TIME	41	.00	2.00	.9268	.72077
T_NAT	41	10.00	90.00	49.3902	17.03948
HDI factor	40	-2.60156	1.37788	.0000000	
GI factor	41	-2.11892	1.26991	.0000000	
E_TOGS	37	3.1195	56.4124	29.4809	12.5512

Hypothesis Testing for Trompenaars' Cultural Dimensions

Table 4 reports the results from estimating the multiple regression model specified in Eq. (1). The model is significant ($F = 35.623$, $p < .0001$) and the independent variables explain a relatively high percentage of variation in the dependent variable (adjusted R2 of .932). The results for the primary variables of interest are the same both with and without the inclusion of the control variables in the model.

Hypothesis 2a predicted that higher T_COL is related to higher corruption levels across countries. Even after controlling for the level of economic development across countries, the regression coefficient for T_COL is negative and not significant ($p = .681$). Thus, I conclude that higher T_COL is related to lower corruption levels across countries, but it does not influence the CPI significantly.

Hypothesis 2b predicted that higher T_DIFF is related to higher corruption levels across countries. The regression coefficient for T_DIFF is positive and not significant ($p = .052$). Higher T_DIFF is related to higher corruption levels across countries, supporting Hypothesis 2b.

Hypothesis 2c predicted that higher T_ACH is related to lower corruption levels across countries. The regression coefficient for T_ACH is negative and not significant ($p = .903$). Higher T_ACH is related to lower corruption levels across countries, supporting Hypothesis 2c.

Table 4
Regression Results with
Trompenaars' Cultural Dimensions

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.766	1.283		2.156	.041
HDI factor	.206	.193	.082	1.070	.295
GI factor	2.440	.230	.953	10.616	.000
E_TOGS	-.007	.012	-.036	-.623	.539
T_UNI	.029	.014	.197	2.114	.044
T_COL	-.004	.010	-.033	-.416	.681
T_DIFF	.033	.016	.245	2.032	.052
T_NEU	.014	.015	.069	.932	.360
T_ACH	-.002	.018	-.015	-.124	.903
T_TIME	-.215	.237	-.061	-.907	.373
T_NAT	.001	.011	.007	.098	.923

Control Variable

Tables 3 and 4 also report on the relationship between the level of economic development (HDI factor, GI factor, E_TOGS) and corruption levels across countries.

Hypothesis 1a predicted that a higher HDI factor is related to lower corruption levels across countries. The regression coefficient for HDI is negative and not significant. Thus, I conclude that higher HDI is related to lower corruption levels across countries, but does not influence the CPI significantly. Thus, Hypothesis 1a is supported.

Hypothesis 1b predicted that higher E_TOGS is related to higher corruption levels across countries. The regression coefficient for E_TOGS is negative and not significant. Thus, I conclude that higher E_TOGS is related to lower corruption levels across countries, but it does not influence the CPI significantly. Thus, Hypothesis 1b is surprisingly rejected.

Hypothesis 1c predicted that a higher GI factor is related to higher corruption levels across countries. The regression coefficient for GI is positive and significant. Thus, I conclude that higher GI is related to higher corruption levels across countries, and influences the CPI significantly. Thus, Hypothesis 1c is supported.

CONCLUSION

In this study, I investigated the influence of Trompenaars's cultural dimensions on corruption perception index across 41 countries. Taken as a whole, my results support the general proposition that national culture, as proposed by Hofstede, is a significant factor in explaining tax evasion levels across countries. Specifically, the results indicate that higher T_COL leads to higher corruption in a country.

This study investigated whether the model offered by Tsakumis et al. (2007) is able to manage new variables, which

could prove robustness. My model employed Trompenaars's cultural framework as a means to explain international tax compliance diversity. Its results suggest that national culture is useful in explaining tax evasion levels across countries. Based on their results, we can describe a tentative cultural profile of a low tax compliance country (i.e., a high tax evasion country) as one that possesses high T_COL, low T_ACH, and high T_DIFF. These results may aid in directing future research by serving as the beginning of a framework for future international tax compliance studies. But we can recognize that culture is an unsteady factor. More and more aspects linked with culture are discovered. That is why it is difficult to predict a cultural profile exactly, as we cannot understand completely its influence on behaviour and on other cultural dimensions.

The limitations of the study reported in Tsakumis et al. (2007) also appear in previous studies, which supported my decision to use the Trompenaars model. First, Hofstede's cultural dimensions were developed over 20 years ago, which may make them appear outdated. However, it is important to note that several studies confirm the reliability, validity, applicability, and direction of differences of Hofstede's scores over time and across countries (a useful review is provided in Merritt (2000)). Second, the current study focuses on national cultural dimensions as the primary predictor of tax evasion levels across countries. To develop a more complete international tax compliance model, future research should examine other variables (e.g., countries' legal systems - see Richardson, 2008) in conjunction with national culture. Third, this study's sample consisted of 41 countries, and the sampling was not appropriate in a statistical sense. Therefore, additional research may be needed to ensure that the results are generalizable to other countries. In addition, future research should examine the role of national culture in mitigating the efficacy of tax evasion penalties within and across countries. It also should explore the use of "home country" and "tax return preparation outsourced" as additional variables in audit-selection models.

The model is weakened by adding more variables, which is why reviews are needed and researchers should examine the influence of more soft factors on tax evasion.

Further research is needed in order to explore the interplay between Trompenaars dimensions and other socio-economics variables on the field of corruption. It could be useful to grab the real nature of corruption. In this paper the correlation of Trompenaars dimensions with CPI were explored, but a deeper, causal investig ation could raise the level of understanding.

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Where is the Limit? Barriers of Theories – Organisations without Boundaries

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SUMMARY

The paper addresses the issue of inter-organisational cooperation. Networks change economic relations fundamentally; however, theory has devoted so far relatively little attention to this development of significance in economic history. It can be attributed to the fact that many evaluate the transformation of large vertical concerns into loose networks as unambiguously as gaining ground by the market against hierarchies. Although there is no doubt that the transformation of large organisations into networks of independent contractors revitalises the market, at the same time it also changes the nature of market relations.
Keywords: networks
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INTRODUCTION

Earlier several publications dealt with networking cluster-type organisations as well as with various issues of outsourcing (Szintay 2006, 2007, 2011). Those studies focused mainly on the structural characteristics, the players, and the innovative organisational adaptations. All those areas necessarily raised the issues of networking. The publications referred to clarified that business networks are organic and active cooperation forms of companies and economic units based on functional, knowledge- and resource-based division of labour which

- are directed at the realisation of common strategic objectives as a result of joint problem solving and
- are based on mutual trust and benefits.

In the course of cooperation, concentrated use of resources and risk spreading are achieved through a division of tasks and responsibilities.

The above definition of a business network is, however, only a punctiform, snapshot-like summary, the central element of which is division of labour achieved by cooperation between the individual players and its management. A network is, however, just like any economic formation, a highly dynamically living, moving and changing system of organisation with the simultaneous representation of:

- division of labour,
- structure of power, and
- structure of knowledge.

This paper, in the present chapter – as an introduction of the train of thought – will deal with the advance of financial investors, which will have a significant impact on the further topics to be covered, next with the background of outsourcing in economic theory as an independent part of a chapter, and with the network theory relations of organisations without boundaries.

FUNDAMENTAL CASES

It can be observed, particularly concerning the securities on the USA stock exchange, that in the past 15-20 years part of the disperse ownership structure has been reduced leading to a concentrated emergence of unit trusts.

As a result, by the end of the 1990s, close to half of the shares of the public companies on the stock exchange in the USA were owned by the unit trusts venturing into the share market, according to certain calculations. As opposed to the private investors representing a smaller weight and sometimes following different objectives, the enormous weight of the trusts secured for them an influence in the general meetings and on the board of directors that has never been seen before. And the trust managers – being financial investors – were primarily interested in the value of their investments rising as fast as possible. The company which was not able to guarantee a return as least equivalent to the performance of the share market had to count with a decrease in the interest of the investors, and thus of the stock list, which the owners – particularly the unit trusts making a living from the return on the shares – were not willing to tolerate. The management had to find the means and measures ensuring the expected increase of the stock lists (Greaver 1998).

Investors began to tie the remuneration of the management increasingly to the stock lists. But since the development of the stock lists is determined not only by the performance of the companies, it did not prove to be the best solution to tie the remuneration of the management solely to the rate of exchange

of the shares of the company in question. As a solution to the problem the formula of the Economic Value Added (EVA) was born in the early 1980s. The index number proposed by Stern Stuart Management Services connected in a creative manner the accounting data and profits of a company with its performance in the share market. The formula EVA (and its successive versions, e.g. REVA) represented appropriate indices of performance also in terms of incentives for company management (Barney, 1997). According to the logics of EVA, the managers deciding on company investments had to make decisions on the allocation of the working capital that the returns on the investment should exceed the minimum return rate which the investors would achieve if they invested in other fields with similar risks. According to the EVA formula, it seemed expedient to avoid investments in non-core activities contributing little to the company performance and therefore not ensuring the expected returns. The changed investment and capital tie-up policy was directed at lightening the burden on the company balance and increasing profitability (Clott 2004).

From the mid-1980s on, the cut-throat competition in the market and the increasingly volatile market conditions made the vulnerability of the vertically organised mammoth companies absolutely obvious. Daimler-Benz, one of the largest companies in Europe, was an example for the fact that an agglomerate of heterogeneous branches of business could result in a staggering economic performance.

The case of Daimler was not blatant at all. Jack Welch, appointed president of General Electric in 1981, used similar tactics to break down the diversified conglomerate. At that time the portfolio of branches of business of GE was at least as wide as that of Daimler. In addition to space technology, the company was involved in medical equipment, video film production and carpets among others. When Welch took up his position, he formulated a simple, but extremely inspiring objective for every branch of business. If they wanted to remain in the GE portfolio, they would have to be the first or at least the second in the world in their own industry. If this objective was not met, he got rid of them summarily. In the subsequent period Welch sold the various branches of business of GE in the value of more than 11 thousand million USD, reduced the number of employees of over four hundred thousand persons by 40 %, and at the same time boosted the company's revenues from 27 thousand million USD to 100 thousand million USD.

For both companies only a double-digit profit rate (11-12%) – as the return expected by the financial investors – became the condition for surviving. GE founded by Edison will slowly cease to produce light bulbs, which shows that professional investors are pushed into the background.

In the following period, vertically organised companies were practically out-vying each other in bringing about disintegration. They expected a simplification of their profile to increase their profitability, attempted to eliminate the sources of losses by re-organising their activities, reduced long-term capital tie-up and improved profitability indices by streamlining the organisation – e.g. eliminating the level of middle management and abolishing redundant jobs – and by selling high-value assets and then re-taking them into lease, or rent (see e.g. the hotel chains selling and then renting their buildings. The changes in the share market contributed to a significant extent to the downfall of the vertical company.

Naturally, in this streamlining process outsourcing led to outsourcing such less efficient activities which it was possible to buy "more cheaply" as an external service. The modularisation of services started to develop rapidly with the development of logistic systems and IT.

Using the model of production system, modularisation lends itself to interpretation easily also in the field of services. Outsiders can be contracted not only for the production of modular part units, but also for performing supportive services for the company as well. A modern company can be conceived of as a central node which concentrates exclusively on the activities providing for the largest added value, and contracts external suppliers and specialists for all other activities. If a need arises for the entry of an additional service, the external supplier joins the company as if in the form a Lego piece, as a module. If the function is not needed, the module can be detached in an identically simple way as it was attached, which is one of the great advantages of the contract relations compared with vertically integrated companies. By using suppliers with outstanding capabilities, it is possible to avoid investments into risky technologies that become obsolete rapidly and to obtain instant additional capacity, if demand changes fast. The scarce resources can be concentrated on the activities of the chain of values which carry the real competitive advantage. Thus the company can avoid unnecessary tie-up of capital and can achieve flexibility and rapid growth.

That means that outsourcing operating on the principle of efficiency immediately produces some networking formation, where independent business units cooperate closely. This is a multi-coloured conglomerate of different ranges of owners, technologies and cultures changing dynamically in space and time due to their amoeba-type movement, which is difficult to define and which is called a boundary-less organization by many. Peter Duckert, Todd Zenger and William Hesterly speak for example about the disaggregation of corporations, others call it de-conglomeration, the deconstruction of companies or their vertical disintegration or – referring to the definitive element of the process, putting activities outside the company – simply describe it as the outsourcing wave:

The successful organisation of tomorrow is built around the building blocks of advanced information technology. The success of the organisation originates in the ability to connect to and disconnect from the nodes of the knowledge network. This networking organisation connects the teams of employees empowered to make decisions, consultants, suppliers and buyers on the 'just as necessary' principle.

The essence of the network is not stability, but adaptation. The network is a kind of anti-organisation, the organisational scheme of which becomes obsolete before it can be drawn up.

Everything is in motion. There are no constant, fixed connections either within the company organisation, or outside it, what's more, what is outside and what is within is also in constant motion. If the traditional corporation resembles mostly some machinery, natural analogies fit best the network: the network company populations can be conceived of as ecological systems, the organic symbiosis of smaller and larger companies.

Networks change economic relations fundamentally; however, theory has devoted so far relatively little attention to this development of significance in economic history. It can be attributed to the fact that many evaluate the transformation of large vertical concerns into loose networks as unambiguously as gaining ground by the market against hierarchies. Although there is no doubt that the transformation of large organisations into networks of independent contractors revitalises the market, at the same time it also changes the nature of market relations.

On the basis of the above, let us have an overview of the approaches of economic theory to explanations of outsourcing.

ECONOMIC THEORY BACKGROUNDS

Division of Labour and Efficiency

Already Adam Smith discussed the advantages of the division of labour and specialisation in his famous work. Smith observed that the same number of workers specialised for a single part operation of pin production produced more pins a day than the same number of workers producing pins by themselves.

While one worker was able to produce 20 pins a day at best, ten workers specialised for individual steps of production were able to produce approximately 48,000 (!) pins. This principle of work organisation observed by Smith resulted in rapid economic development and an increase in social welfare. The increasingly greater specialisation of labour and the final separation of the various trades and jobs are also due to the advance of the division of labour.

Among the classics, David Ricardo also analysed efficiency resulting from the division of labour. In his classic example he discussed the possibility of trade between Portugal and England, presuming a situation where one of the countries is absolutely more efficient in the production of every product (i.e. less labour content is required for the production of the product). Ricardo showed that in the case when each country would sooner produce the product in the production of which it had comparative advantage, i.e. compared with the joint average productivity of the two countries, its advantage was greater or its shortfall smaller, it was possible to increase overall production. Naturally, countries were only able to take advantage of the increasing overall production, if they traded with each other. He used the theory to provide a justification for international trade.

At the beginning of the 20th century, further improvement of the division of labour took place in the manufacturing industry, particularly in motor-car production, through the invention of the production line. In the assembly of his motor-cars, Henry Ford combined continuous production with the division of labour. The activities broken down into individual phases of work had to be performed by the workers specialised for them in a given period of time. Thus the production costs of a vehicle decreased dramatically, while at the same time the quality of the assembly improved essentially. Ford's idea was further developed and improved in the course of the decades since then, then in the past few decades robots appeared beside the assembly line next to/ instead of the workers.

Outsourcing an activity means the enforcement of the division of labour. In outsourcing, the internal organisation of the division of labour is superseded by the division of labour performed between organisationally and legally independent companies; companies specialised for the individual elements of the chain of values enter into contractual relation with each other. The objective continues to be the realisation of efficiency and benefits resulting from the division of labour, which appears at the outsourcer as a reduction of costs and on the supplier side, as profits.

Market Versus Vertical Integration: Transaction Costs

In outsourcing the division of labour organised in the corporate hierarchy, the bureaucratic coordination is replaced by market coordination. The question is which form of coordination is more efficient? The problem can also be formulated as: where should the boundaries of the company lie, i.e. which activities is it expedient to organise within the vertical organisation and which are the activities which can be entrusted to the external market players? The answer is given by the economics of transaction costs, which will not be discussed in detail here (the works Williamson 1975 and Conner 1991 are well known.)

By way of summary, it can be stated that the size and range of influence of a company depend on the savings and cost increments which the company realises in the course of performing a transaction in house, in-sourcing, compared with obtaining the same input-service from the market. On this basis, vertical integration and diversification, but also competence-based company developments lend themselves to explanation easily. For more detail, see (9).

The principal - agent theory and the game or trust theory are closely linked to the theories of transaction costs.

The principal - agent theory is based on a description of the relation between principal and agent. In the relation the principal invites the agent, for the purpose of achieving some objective, to perform the task defined by the principal acting on behalf of the principal. However, the interests of the agent may clash with those of the principal, and the agent is inclined to maximise his own interests at the costs of the principal. Starting from this, the theory is based on three problems arising in the principal - agent relation: the opportunism of the agent, the information asymmetry between the two parties and the different attitudes of the agent and the principal to risk.

The statements of the principal - agent theory can be applied almost fully to the inter-company relations created in outsourcing. In the outsourcing contracts the requirements concerning the expected final outcomes and those concerning the behaviour of the service supplier are mixed. E.g. in informatics outsourcing ensuring 98 % availability of the network is an expected final outcome, while the stipulation concerning the reaction time of the Help Desk is expected behaviour. Both are measured, validated systems are used for their measurement, and in some cases even external experts can

be called upon to examine the performance of the service provider. Measurements are not cheap, the validation and benchmarking performed by external experts may cost millions. Despite all this, in outsourcing relations "we are arguing almost all the time" (as stated by several interviewees, see later!), which means that the service provider does not share the objectives of the outsourcer to the full, and a divergence of the objectives is typical.

Modelling of the cooperation is examined using one of the best known applications of games theory, the prisoner dilemma. The prisoner dilemma is also suitable for presenting the possibility of opportunism exhibited in the course of a single-period contract. The model can be used to prove that the parties following exclusively their own interests may use mutually destructive tactics in contractual relations, which results in a deterioration of the service, and the dissatisfaction of the partners leads to the termination of the contract before its end or to discarding its prolongation later.

The Theory of Sustainable Competitive Advantages

This group included several schools of thought, here

- the theory of core competences, and
- resource-based theories will be dealt with in outline, supplementing the discussion with the theory of inter-company relations.

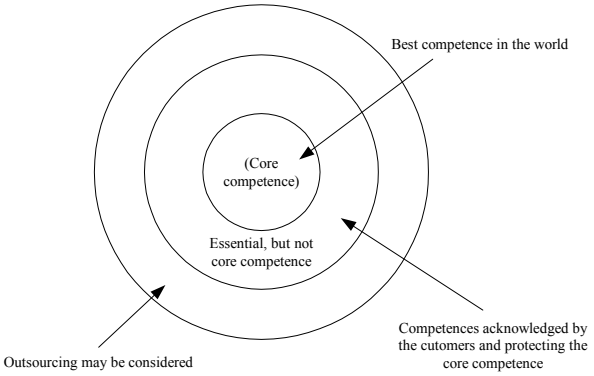
The Theory of Core Competences

In the early 1990s Prahalad and Hamel (1990) renewed the view on the origin of corporate competitiveness. Their approach focused on the internal competences of the company, also called fundamental or core competences.

Core competences cannot be separated from corporate organisation. They do not mean the aggregate of the knowledge of the persons constituting the organisation, but are the results of the synergy created by the collective knowledge of the persons constituting the organisation, including the corporate processes supporting the utilisation of the specialist skills. The core competences are the treasures lying not in the individual persons or in some unit of the organisation waiting for the company to utilise them, but they are typically cross-functional, knowledge-based skills or competences found in the entirety of the organisation.

According to Prahalad and Hamel the most important features of the core competences are that (1) they ensure access to a wide range of a variety of markets, (2) their contribution to the quality of the end products perceived by the consumer is significant, (3) they cannot be imitated by the competitors because they represent a complex harmonisation of individual technologies. They are few in number: in most cases companies are able to build up and maintain a maximum of five or six competences representing a global lead. The core competences are the organisational capabilities ensuring survival; these are what the next generations of the competitive products originate from. Core competences cannot be hired through outsourcing, or supplier chains.

The decisions on outsourcing activities and the concept of core competences were arranged in a common strategic framework by Quinn and Hilmer (1994). According to their argumentation, companies have to concentrate on their core competences representing excellence and being able to supply the costumers with unique value, while they have to outsource the other activities traditionally integrated by the company. Their internal performance is, on the one hand, no strategic responsibility, and on the other, they do not carry the critical competences. Companies have to concentrate their scarce resources on the areas and activities where they are world leaders. In the activities where strategic excellence is less important, the company can make use of the investments, innovations and specialised, professional competences of external suppliers. In those areas the company would be able to achieve excellence within its own organisational framework only at a prohibitive price or would not be able to achieve it at all (Figure 1).



Source: Quinn 1999

Figure 1. Core Competences and Outsourcing

The concept of core competences was highly successful in the management theory of the 1990s. A great number of companies began to define their own core competences.

However, identifying core competences often meets with serious obstacles. What could be the core competence of a relatively simple company performing a standardised activity?

Let us think of a cleaning company using a mature technology and providing a standardised service. What are its key products? Because of this, the concept of core competences also inspired a great number of critics, among them Porter, who says that it is not the inconceivable core competences that are to be looked for, but companies have to strive for sustainable competitive advantages by performing distinctive activities in distinctive manners (Porter 1996).

Resource-based Approach to Corporate Competitive Advantages

Although the theory of core competences inspired a long line of specialists, many have pointed out that the concept is nothing else but a narrower approach to the resources-based view (RBV) of companies. The resource-based view places the unique, not imitable corporate resources that are essential for

competitiveness in the centre of its analysis (see Barney 1997, Conner 1991).

The resource-based theory is based on an economics approach. According to the theory, companies can be regarded as sets of physical and intangible resources and capabilities, which determine with what efficiency the functional activities can be performed. Companies are characterised by heterogeneity of resources and capabilities, and different companies possess different resources and capabilities. The valuable resources and capabilities make it possible for the companies to perform activities at lower costs or better than their competitors and thus to achieve a competitive advantage. According to the concept, resources and capabilities create value, and this value is the sum of the consumer's surplus and the producer's profits.

The unique resources may be (1) individual physical resources (e.g. land, site, exclusive right of access to raw materials), (2) special human resources (e.g. individual leadership talent), (3) technological resources not imitable by others (e.g. possession of exclusive patents), (4) intangible resources (e.g. corporate reputation).

Special resources cannot be imitated by others. The reason for that can be found in their physical uniqueness (see for example a hotel built in a unique location), or perhaps their accumulation is 'dependent on a path', i.e. they cannot be obtained at one jump, e.g. by acquisition, or by an investment made at a given moment (e.g. reputation of a brand). This means that the road or path leading to a unique resource cannot be shortened in any way. In other cases imitation is impossible because the competitors are not able to identify the unique resource itself or do not know how to create it themselves (causal ambiguity). Last but not least, potential competitors may also be deterred from imitation by a substantial investment in a special resource. In that case the market is in general so small that a single company can meet the demand. And the supplementary capacity created by others cannot be utilised efficiently; with a new investment the competitors would only be able to market the production volume established at a loss.

Research has clarified rather early that the collective term of resources can be divided into resources and capabilities. In this respect resources are negotiable and not specific to the company (e.g. specialist know-how, financial and physical resources, human capital, etc.), while the capabilities are company-specific and enable the utilisation of the resources. The capabilities are information-based, tangible or intangible processes which are developed through the complex interaction between the resources. The capabilities are based on the information developed, collected and exchanged by the human resources of the company, are 'invisible resources', are frequently developed in functional areas or are created at corporate level by the combination of physical, human and technological resources. The professional literature of the resource-based view also came to apply this distinction (see e.g. Barney 1997)

The value of unique resources is to be judged by the extent to which they can be regarded as valuable, rare, how imitable they are and whether the company possessing them can exploit them. The evaluation can be performed using the VRIO (value, rarity, imitability, organization) framework of analysis. (Barney 1997, Table 1)

Table 1
VRIO Analysis Framework of Resources and Capabilities

Valuable?	Rare?	Costly to Imitate?	Exploitable by the Organization?	Its Impact on Competitiveness	Economic performance	Strengths or Weaknesses?
No	-		No	Competitive disadvantage	Below normal profit	Weakness
Yea	No	-		Competitive-parity	Normal profit	Strength
Yes	Yes	No		Transitional competitive advantage	Above normal profit	Strength and distinctive capacity
Yes	Yes	Yes	Yes	Sustainable competitive advantage	Above normal profit	Strength and sustainable distinctive capacity

Source: Barney 1997, p. 163.

The resource based view of a company does not exclude Porter's approach to the branch structure. What is more, the unique resource is to be submitted to a strict market test to assess its suitability for ensuring competitive advantage. If a company bases its strategy on unique resources, it cannot ignore the dynamics of the industry.

The resource-based view of the company offers a strategic framework similar to the one presented in the analysis of core competences (Quinn and Hilmer 1996). The activities supported by unique capabilities and/or resources important in respect of the sustainable competitive advantages are of strategic importance for the company, thus the activities which are not critical as a result of focusing on the former one can be outsourced.

This train of thoughts can be reversed. Is it worth concentrating on the activities which cannot be the sources of sustainable competitive advantage? If a company cannot perform an activity in a cost-effective way or it does not contribute to the revenues or to the value produced for the customers, and is not supported by the unique capabilities or resources either, it is worth keeping? Is it not more expedient to find the best external sources in the world, companies in which the less important or marginal activity of the company is an activity supported by unique resources and core competences?

In this way the outsourcer obtains the available best performance and the best available competences from an external source. It is a different question that later on the outsourcer is not able to evaluate the service provider professionally appropriately, for the outsourcing results in a deterioration of the internal expertise.

In addition to the theory of competitive advantage explained by the industrial structural forces and the resource-based view of the companies, a third theory has emerged in the past years, which derives sustainable competitive advantages from the relations between the companies involved in the supply chains and in strategic alliances. The theory is called relational view, i.e. the theory of competitive advantage arising from inter-company relations.

Theoreticians involved in theoretical management began to pay attention to the special capabilities arising from partnerships in the late 1980s and early 1990s. The system of suppliers mentioned earlier and used in a revolutionary way by Toyota, operating with high relation-specific investments yet with low transaction costs, and the strategic alliances or partnerships spreading in the early 1990s led to the birth of the theory.

Outsourcing Risk and Returns, Matching the Theoretical Background

Naturally, every approach and underlying theory can describe certain things well, and can describe and explain other issues less appropriately. It can be stated that the transaction cost theory, which explains the decrease in capital tie-up, apportism and the transaction costs involved in contracts, lends itself well to matching. So does the resource-based view, according to which outsourcing enables companies to focus on exploiting their own internal resources/capabilities, to have access to world class expertise and at the same time can lose critical knowledge by outsourcing the wrong activities and even lose innovation competences.

Table 2
Outsourcing Risks and Returns, Matching the Theoretical Background

Outsourcing benefits and returns	Matching theory	Outsourcing risks	Matching theory
Reduction of costs for various reasons	TCE and RBV	Outsourcing the wrong activity, losing critical knowledge	RBV
Focusing on core activity	RBV	Choosing the wrong partner	PAT
Access to expertise, improvement in the quality of processes	RBV, RV	Bad contract, ignoring the transaction costs related to the contract	TCE
Reduction in capital tie-up	TCE	Supplier opportunism, lock in, losing strategic flexibility	TCE
Flexibility and scalability	RBV	Deteriorating morale and productivity, negative trade union reactions, losing key persons	None by itself, TCE, RBV
Positive impact on innovation	RBV, RV	Decline of organisational culture, loss of flexibility, weakening of robustness	RBV
Radical crisis management, re-organisation of business process	RBV, RV	Losing innovation capability	RBV

TCE= transaction cost economics, RBV = resource based view, RV=relational view, PAT = (principal-agent theory
Source: Hinek, M. C. 2009.

Of the two ‘smaller’ theories, the principal - agent theory explains the risk that the outsourcer chooses the wrong service provider (counter-selection). The relational view matches the yields of outsourcing when the relation between the service provider and the outsourcer advances towards strategic partnership (positive impact on innovation, re-organisation of business processes).

Some benefits and risks match both theoretical models. So does the reduction in costs, which according to the transaction cost theory in its narrow sense carries an explanatory force when the costs related to directing the transaction, and the costs due to means-specificity, opportunism and uncertainty decrease. On the other hand, the resource-based theory explains how specialised service providers can achieve a reduction in costs by means of their unique resources and/or competences and a lower position of costs compared to the outsourcer.

A special area is the issue of the deterioration of morale and of losing key persons. This risk is not explained well by any of the theories, but arguments can be found concerning both transaction cost economics and the resource-based view. Key persons represent the issues of means-specificity, their loss may withdraw critical knowledge from the organisation, thus this result matches the resource-based view.

STRUCTURAL ISSUES OF OUTSOURCING CONCERNING NETWORK CONGLOMERATIONS

Table 1 shows organisational efficiency as an essential aspect of the VRIO analysis. It has been suggested several times that outsourcing in general results in co-sourcing networks. That is it always induces cooperation initiatives which:

- ➢ are directed at achieving common strategic objectives as a result of joint problem solving,
- ➢ are based on mutual trust and advantages.

Concentrated resource utilisation and risk spreading are achieved in the course of cooperation through sharing the tasks and responsibilities.

The above definition of a business network is, however, only a snapshot-like summary. A network is, like any other economic formation, a system of organisations which lives, moves and changes in a highly dynamic way through the joint representation of:

- the division of labour,
- the power structure,
- and the knowledge structure..

If the structural issues of this phenomenon are examined, the real challenge facing the organisations working in a network form is to manage the cooperation forms appearing in the various relations. This factor of organisation and management is not a question that arises automatically for the organisations. If legally independent organisations are examined in the traditional way of thinking either in the supplier-buyer relation (where maximising the profits in the transaction depends on the supplier and buyer positions), or in the relations between competitors, the cooperation can be considered to be a foreign, limited relation.

In operation in a network, the management of cooperation is to be divided into two decisive areas: the management of the inter-organisation relation of cooperation (the management of meta-organisational challenges), and the management of inter-organisational cooperation within the organisation and creating its background (micro-organisational challenges).

Management of Meta-Organisational Challenges (Szintay 2011)

The central character of a network organisation and management programme is the network manager (network broker, to use a popular term), which may be either a company or a group of experts or an authoritative organisation of the network. The role and responsibilities of the network broker differ significantly from the activities of the managers of hierarchy-based companies. Namely, the network broker organises the operation of the network not within an organisation, but 'reaching across' the boundaries of hierarchies and mobilizing them for achieving the objectives at hand and allocates the resources for their optimum exploitation. Network management has to ensure the following general principles:

- promptness, i.e. the network has to be able to be dynamically changed, has to be able to react to the newly emerging challenges of the market, always taking the formation considered optimum;
- being free of costs, i.e. the operation of the network may incur only minimal expenses on the side of the different players, or at least the profits that can be realised should substantially exceed the expenditure;
- avoiding isolation, i.e. there should be no isolated players or groups of players within the network, or any factors which may question the achievement of the network objective (or system of objectives) set;
- being frictionless, i.e. the network cooperation should work with the least possible conflicts, maintaining the possibility of cooperation in any direction between the individual players.

In order to make these general principles prevail, the management directing the 'meta-organisational' processes has to perform three tasks (roles) of key importance, which at the same time also mean managing the 'meta-organisational' challenges:

- 'system administrator', the function of which role is to manage the various programmes already initiated, to check the performance, possibly to involve service providers, to control the network process, to operate the network development systems, and to ensure the continuity of the network operation;
- contact person, the function of which role is to explore the strategic alternatives of the network, to initiate the directions of network development, to initiate and launch new programmes, to identify new cooperation partners and to involve them into the network.
- The network broker is not only a consulting or management organisation, it is to a much greater extent a function providing the framework or the network cooperation, which operates as a connecting link and indicator in the interest of maintaining and developing the whole network.

Managing Micro-Organisational Challenges (Szintay 2011)

Managing inter-organisational cooperation within an organisation requires mainly using structural coordination instruments and their increased utilisation, of which two different forms have to be highlighted here:

- The task falling to a particular organisation within the network operation can be defined well at the time of beginning the task, it has a definite starting point and end point, and the flow of input information or results and of output information or results is realised through bilateral relations. In that case it is justified to build a cross-functional project or team structure within the organisation. This affects the fundamental activity of the organisation only to a limited extent.
- The task falling to a particular organisation within the network operation cannot be defined well at the time of beginning the task, only the expectation of the necessary output emerges on the part of the other members of the network. For the performance of the task, an inter-organisational project or team is established, which performs inter-organisational resource and activity allocation for the achievement of the programme. In that case ensuring the organisational integration of the inter-organisational structure is a priority task. Beyond stating the responsibilities, obligations and command powers, advanced, highly active communication within the organisation carries outstanding significance as an instrument of preventing possible resistance in the organisation. The difficulty in that case is represented by organising multi-communication.

By way of summary: theories always provide satisfactory explanations along presuppositions and boundary conditions, yet even so they often lead to insecure ground in science. Business sciences are characterised by the fact that the permutation experiments of practice produce viable mutants next to a great many failures through screening them by market rationality.

The theory attempts to analyse and systemise these, excluding the defective ones 'with great certainty' and giving way to further empiricism.

Acknowledgements

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The Current Role of Accounting Information Systems

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SUMMARY

The primary purpose of this paper is to present the actual role of accounting information systems. After the description of the theoretical background I state the main characteristics of modern accounting systems, and explain how these software packages can efficiently help not only the work of the accountant, but also of the management.
Keywords: accounting; accounting information system; accounting software; ERP system; management information system
Journal of Economic Literature (JEL) code: M10, M41, O10

INTRODUCTION

Within the information system of management systems the accounting subsystem ensures the numerical figures can corresponding to reality – of the property, financial and profit status of the enterprise. As a consequence, processing the accounting information is one of the most decisive elements of the pre-decisive, i.e. pro-decisive process of managers.

As a result of the important and spectacular development of informatics and information technology, wide-spread automatization can be observed relating to accounting work-processing. This is proved by the appearence and spread of the different user software. Nowadays accounting software packages have a quite wide market – there are numerous software programs supporting book-keeping, reporting, recording economic events or processing – and in many cases they support the activity of the enterprise as an organic part of a complex, up-to-date, integrated information system.

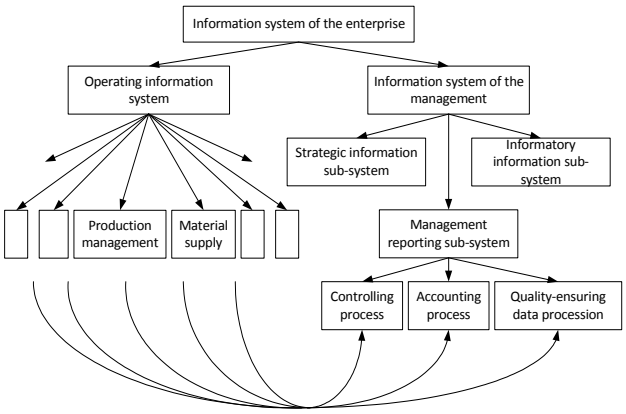
The Concept of the Information System

Accounting, as a closed-system recording (which is the collection of procedures, methods, techniques, legal regulations, rules and experts), includes the identification, tracking, measuring, recording, processing, storing, systemizing, valuing, controlling and publishing of the phenomena influencing the property, financial and profit status of the enterprise, ensuring the conditions of continuous, undisturbed activity. In this regulated, closed system the accounting information system records the economic events influencing the enterprise, then processes them – according to the demands – and conveys them to the persons or units responsible for decisions. In addition, the system greatly contributes to preparing different reports, financial statements, working out an expense management system and compiling controlling reports.

Accounting is – at micro-level – i.e. the level of the enterprise – the sum of activities which are done within the framework of an accounting information system by the experts of the enterprise.

The Function of the Accounting Information System, its Position in the Hierarchy of the Enterprise

The accounting information system, i.e. the accounting process, can be defined as a subpart of the information system of the enterprise, and within it as a subpart of the information system of the management.



Source: Pál 2006

Figure 1. Information System of the Enterprise

On the basis of the diagram in Figure 1 it is obviously seen that the task of the accounting information system is to meet the data demands of the management information system through the management reporting sub-system. So it provides information for the managers of the enterprise, certain functional areas and the body of the owners and the supervisory authorities. The information supplied by the accounting information system has an important role in basing the decisions on, inside or outside of the enterprise.

The accounting information system is in close connection with the management information department, the accounting and administration department, the inner control and the information technology team. The harmonic and efficient activity of these areas characterises the centre of the accounting information system, which provides for the basic data of the informational database.

The information system works within the enterprise and includes two, closely related sub-systems: a data-processing/information supplying sub-system and a decision-making sub-system. The data-processing system is responsible for acquiring, coding, storing, processing and forwarding the information necessary for the activity and operation. The task of the decisive sub-system is – on the basis of information from data-processing systems using them – to influence ,directly or indirectly, with the management processes and the operation of the system. However, the decisive sub-system is special, as in practice it has "only" a pre-decisive, pro-decisive role. Accounting, as the decisive sub-system of the information system, can have a special role because within the enterprise accounting as a functional area does not have decisive competence related to the activity and operation of the enterprise, but does have a great role in preparing and supporting the decisions of the management.

The accounting system includes two main activities according to Schehl's categories concerning the activities of the enterprise (Schehl 1994):

- processing information and
- supplying information.

According to the above categories, the dual purpose of the accounting information system can be defined: on one hand to fulfill the registrative, accounting and reporting duties; on the other hand to provide information at the highest possible level for the manager's decision-making activity. This dual function defines the contents of the sub-system, its tasks and its connections. The characteristic sub-systems of the accounting information system are the following in practice:

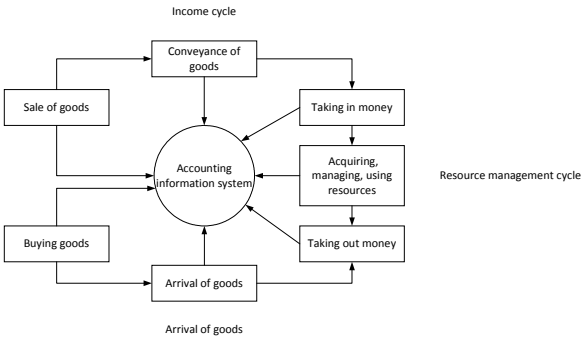
- Ledger and current account sub-system
- Financial sub-system
- Sub-system of labour and wage accounting
- Sub-system of investment
- Sub-system of invoice and sales
- Sub-system of stockpiling.

The most important criteria for organizing the sub-systems – in relation with the given system – are the exact knowledge of purposes, connections, processes, vertical and horizontal relations, personal aspects, codes, basic data, inputs, transformations and outputs.

The processes of the account information system can be summed up in three essential groups:

- income cycle
- expenditure cycle
- handling the resources.

The income cycle means sales and obtaining their income, the expenditure cycle contains the processes from getting the material to fulfilling the payment, and handling the sources means getting the sources, storing, using and optimizing them.



Source: Chikán 1992.

Figure 2. Components of the Accounting Information System

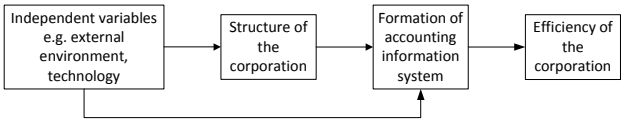
The complete tracking of the economic processes can be realized if there is a complex and up-to-date database behind the above-mentioned processes.

The Accounting Information System and its Environment

The accounting information system is the frame of practical accounting activity, as it tracks the events of the enterprise, supplies data for the managers' decisions, and organically contributes to the reports for the managers, to the financial statements, to compiling the expense management systems and last but not least to the controlling reports. The processes in the environment of the enterprise influence the elements of the accounting information system, too. Among the constituents of the accounting information system the human factor has an outstanding role (nowadays there are great demands concerning the employees' competence, expertness and experience) and those activities which belong to accounting (in brief, book-keeping and reporting). The analysis of the system means the analysis of the system and also its environment for the sake of better and more complete knowledge.

Different models have been formed to illustrate the constituents of accounting information systems and the external effects influencing the system. The contingentalist attitude has been prevailing since the 1970s in the research of accounting and management control, as it was thought that an effort to form a situational explanation – starting from the analysis of the environment – can be useful in the research of these systems.

The early contingentialist model of the formation of accounting information systems was based on corporatetheory:



Source: Otley and Wilkinson 1988

Figure 3. The Early Contingentialist Model of Accounting Information Systems

On the basis of the model the influencing factors of the formation of the system are independent variables and the structure of the corporation. Later the independent variables were split into non-influencable factors by the corporation (like external environment, economic, technological, legal-political, socio-cultural and natural) and purposes/strategy drawn up by the corporation. (A factor that can be influenced by the corporation can be defined by the size, legal status, ownership, technological conditions, management and the corporate behaviour.)

The accounting information system is continuously changing with the economic surroundings, so it is considered to be a dynamic system as it is developing in reaction to the environmental changes. Furthermore, it is an adaptive system, as it is able to react and adapt, contributing to the better results of the enterprise.

The working of the accounting information system mainly depends on the people operating it and their professional knowledge and experience. The change in the system goes together with the change of the elements of the system. In recent years the demand for the human factor has grown; as a consequence of the rapid development, the expected skills and abilities are different. However, the demands for the managers of the enterprises are not unified, they greatly depend on the special features of the enterprise.

The changes in the direct environment (processes within the enterprise) – and indirect (economic and social) have led to modifying the accounting information, the demands for it have also changed. New clients have appeared claiming the database created by the system and, in parallel, the contents of the required information have been modified, as well – the role of quality has risen.

In recent years the quality requirement has appeared more and more frequently in professional publications that define the requirements concerning accounting (Pál 2010). The continuous development of the accounting information system usually does not belong to the primary purposes of the enterprise, as the management usually considers it too obvious that the information system is continuously increasing to meet the expectations. As a result, the development of the accounting information system is primarily defined from the side of requirements, so the quality demand changes concerning the accounting information, i.e. the output of the system, while newer demands may appear in relation with the process.

The development of the accounting information system is induced by the above-mentioned increase in demands, which may cause the modernization of the whole information system – if the enterprise can fulfill all necessary conditions. Regarding the increase and changes in demands, the primary purpose of development is improving quality; meeting this target is mainly supported by modern information technology. This is a serious job demanding time – and money – which is able to produce the required data at a newer and higher level.

The Accounting Information System in Practice

After the registration of a new firm at the court – which means the birth of the enterprise – in addition to the essential economic activity in close connection with it – the formation of the accounting information system has outstanding importance.

Concerning the accounting information system, the first important step is to decide how to realize the book-keeping of the enterprise:

- working within the enterprise (inner book-keeping)
- entrusting a book-keeping office (outer book-keeping).

The choice is greatly influenced by the size of the enterprise, as well as its economic competence. A further emphatic aspect can be how to ensure the adequate flow of data, as the ability to react and decide thoughtfully greatly depends on the obtained information.

In the case of forming the accounting information system, among the requirements of the system I would draw attention to the conformity to the laws: both to the rules of accounting law and to conditions of the accounting policy (newly formed firms are obliged to prepare their accounting policy within 90 days after their formation) and to the registration and obligation to the tax authorities.

The most important purpose of the accounting information system is to promote the activity of the enterprise, to form a reliable and real picture of it. The accounting information system promotes the activity of the enterprise effectively in the case of the following points:

- preparing up-to-date statements,
- providing as much information as possible so that the data should be understandable not only for the experts (book-keepers),
- contributing to different statistics by means of the links of the system,
- tracking liquidity.

Further questions may be asked in connection with the effective support of the economic activity concerning the accounting information system, e.g.:

- Does book-keeping support the system in controlling liquidity?
- What kind of income covers the expenses?

The Accounting Information System and the Information Technology

The spread of informatics has given rise to a completely new way of providing information. The development of information technology is a great help in accounting to manage the piles of data. In the 20th century the world-wide expansion of technology and informatics created the possibility of using

the information obtained from the accounting information system consciously and efficiently.

As a consequence of automatization, nowadays accounting software (accounting software: a programme which makes accounting work processes easier and faster and which makes it possible to meet the information demand of the management) supports the accountants' work, helping to compile reports by recording and processing the events concerning the enterprise, (according to the law, since 30th April 2009 accounting statements/reports must be published electronically) and preparing tax returns (the system of electronic tax returns was introduced on 1st January 2007; since then statements on paper have been largely abolished, with some exceptions).

Besides supplying the basic information the accounting software should meet the demands for providing data that management can base its decisions on and for informing different sub-systems dealing mainly with planning.

One of the areas demanding extra information within the enterprise is management accounting, the efficient operation of which needs the working of the accounting system at a high level – its instruments are the modern computing programmes. Proper decisions made in proper time need accounting information which is produced by the information system supported by accounting software.

In perceiving, recording, processing and forwarding information the accounting information system has indisputably a central role, which requires the quick and efficient processing and forwarding of data. Informational support is indispensable to reflect the economic changes in our globalized world; in its interest the accounting software efficiently assists the users to obtain the adequately transformed information in time. In respect of thoughtful decisions, obtaining information ensuring the adequate flow of data is very significant because it greatly determines the reactive ability of the enterprise. Nowadays (as a consequence of the economic crisis) the demand for "real and valid" data given by the accounting information system has risen, and their quality and feedback depend on the applied accounting software, the integrity of the database and the professional skills and flexibility of the accountants.

In the business world those enterprises and firms can be successful which are ready and able to renew. An essential element of this ability is applying modern software in the economic processes – connecting the modules supporting different areas for the sake of more efficient operation – which naturally concerns the accounting information system as well.

To automatize the processes of the enterprise it is usual to apply targeted software, i.e., complex solutiosn supporting the whole business processes have not spread yet, and the so-called island-like applications (Bányai 2010) are dominant in the domestic market, too. The introduction of business software usually happens in cases of processes which can be easily automatized (usually accounting, book-keeping or wage-accounting) simply, isolated from other processes. Such software can be found even in smaller enterprises.

The well-chosen Resource Planning (ERP) system within it the proper accounting information system is a quickly recovering investment, by which the processes become transparent, the expenses can be planned, the managers' decisions are more supported; shortly, the firm is more capable of growth.

It is very advantageous if, besides the accounting system, the basic activity of the enterprise is supported by software modules which can be linked and are able to co-operate efficiently. In a complex system created like this it is important for the software to support the main activity, the different business processes in details, but in an integrated way. To realize this, it is essential to have a common database reflecting the whole activity of the enterprise, up-to-date data, and reliable information. The target of the complex information system is to support the planning and strategic decisions of the management (in which the management information system has an important role) and to support the inner mechanism of the enterprise and the interenterprise processes.

At the beginning of the formation of the system meeting the demands for the accounting and financial regulations and the management's expectations were essential Expectations appearing later included increasing efficiency, making the most of capacity, optimizing the supply processes, reducing the expenses, and the ability for planning. At that time the commercial and logistic areas were the primary areas of interest. Nowadays the main aspects are reducing risks, creating and keeping stability, and obtaining reliable data for the decisions of the management.

It is an important requirement to have a quickly, reliably operating system which can be used easily and can be complemented with further elements or functions, depending on the modifications, and therfore can react to changes. That is why the link among the different modules for automatic, efficient co-operation has become highly important, as it promotes the calculations, planning and decisions because the accounting information system is in direct connection with the relevant areas.

The old applications are inflexible. Their adaptation to changes is difficult, they are dissected vertically, and only certain areas are automatized, so the data relating to different areas must be entered separately, which is time- and work-consuming. It is indispensible to know the exact demand of the users so that the different levels of management can obtain the data relevant for them. Asking for the necessary information does not always give the expected results: giving the aggregated data takes too long because the proper links are missing from the databases A further fault of this management information system is that it fails to provide complex information with a strategic view.

The information of the enterprise has the following requirements:

- providing information for the management and creating a management information system which supports the decisions efficiently,
- besides the functional aspects it manages the processes outside the borders of the enterprise,
- for the sake of these, by forming an information technological environment for the whole enterprise which relies both on the inner and outer data, it creates links among the applications.

To meet the above-mentioned demands ERP systems have been produced. An ERP system is a package of complex software for realizing the planning of sources in the enterprise by which the firm completely electronizes its own inner management, from following the movement of material to comparing the bills and invoices. It is an application formed out of modules which offers an up-to-date, integrated software solution to manage the functional areas and operational processes of the enterprise.

With the formation of an ERP system both the accounting and controlling and management obtain a huge informational database. With the continuously widening functionality these systems are the bases of the informational support of the enterprise.

CONCLUSION

In recent ERP systems accounting – from the book-keeping items to the instruments for reporting, controlling and output-management – is an highlighted area. ERP software should ensure a connected application for management and reporting, among which the elements (ledger, different analytics) supporting the accounting information system have special significance. These applications provide the necessary transparency and the access to the financial and accounting data for the employees concerned.

The book-keeping programmes mainly help the book-keepers' and financial managers' work. Though their work has a crucial importance for the enterprise, it is limited to preparing tax returns and reports on the budget and finances. Unfortunately it occurs in practice that the managers of the enterprise sign quarterly or yearly reports which are not transparent and representative, i.e. they are not understandable for them. The standardized statements are not made for top managers, rather for the operative leaders. By using ERP systems it is possible for those in the top management to view the financial and accounting indices and to understand their meaning, as it is possible to follow the indices and data to the lowest level.

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Competence-based Operation in Human Processes of Companies

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SUMMARY

Since our environment is changing ceaselessly, and ever more dynamically, companies should also improve and develop steadily; they should become more efficient and more modern. Nowadays, a good product or service and a lean organization is not a guarantee of success. In this harsh competition continuous innovation is more and more important to change over and over again and thus develop our operation and the processes which create the value. In business processes the human factor has always been important; however, nowadays there is a growing amount of research about how to contribute to the more efficient operation of companies. The structural utilization of the competence research results and competence-based human resource management is a significant policy.
Keywords: innovation; process innovation; human resource management; competence management
Journal of Economic Literature (JEL) code: O31

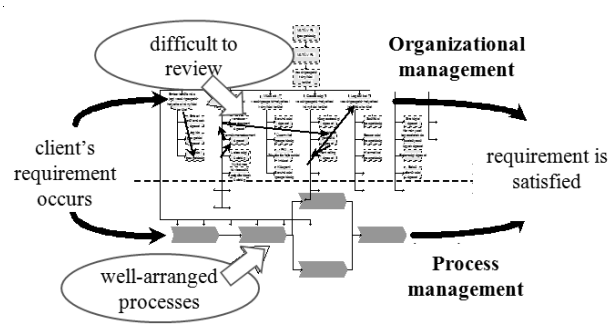
INTRODUCTION

In the more and more growing economic competition only innovative, flexible, quickly responding companies which provide cheap but excellent quality can stay alive. In the last decades the significance of the human factor has been stressed by the world management press, emphasizing that human performance is the gage of all success. In the background of trends in business, the appraisement of human resources obviously exists within the whole operation structure of a company (Chikán 2000). The basic surmise of human resource management is that human beings are the social capital, a valuable factor which is able to develop, and this is definitely a determinative factor in achieving competitive edges. By now the economic environment of companies has essentially been re-arranged. Only those companies can stay alive which are able to renew continuously and are ready to change. (Deák, 2005.) So obviously a companies' conformation to the successful market events mainly depends on the efficient management of its human resources (Kotter 1999).

ROLE OF HUMAN RESOURCE IN VALUE CREATING PROCESSES OF COMPANIES

Process management as a style of living has infiltrated business life. When in the 1990s several experts (e.g. Hammer and Champy 1993) introduced these expressions, the process-based approach of organizational operation was a controversial novelty; however, currently it is applied routinely all over the world. There are just a few directors who cast doubts on the idea that the efficient management of processes and the reconstruction of business processes can enhance the performance extremely, enabling the organizations to provide higher value to the customers. Considering all the industries, the most different sized companies achieved extreme improvement in expenses, quality, speed, and ability to produce profit and in other key factors, so as to concentrate on customer service and internal processes, what were checked and re-arranged.

If Enterprise Resource Planning (ERP) is completed with the tools of process management, the daily operation becomes smoother and smoother, with fewer and fewer mistakes, to be fulfilled more and more efficiently. (Hammer and Champy 1993).



(on the basis of IDS Scheer in Innovation management research and practice)

Figure 1. Traditional (function-based) and Process-Oriented Approach

The process is how the company evolves and transmits the value to the clients, even if it is not acknowledged by the company. As illustrated in Figure 1, in the traditional, functional organizations the processes are invisible, disrupted, anonymous and almost unmanaged. They show examples of inevitably bad performance. Contrarily, the advantage of the process-based approach (Tenner and DeToro 1998) is to increase value by transforming inputs into outputs (into benefits or services) with continuous combinations of people, methods and tools.

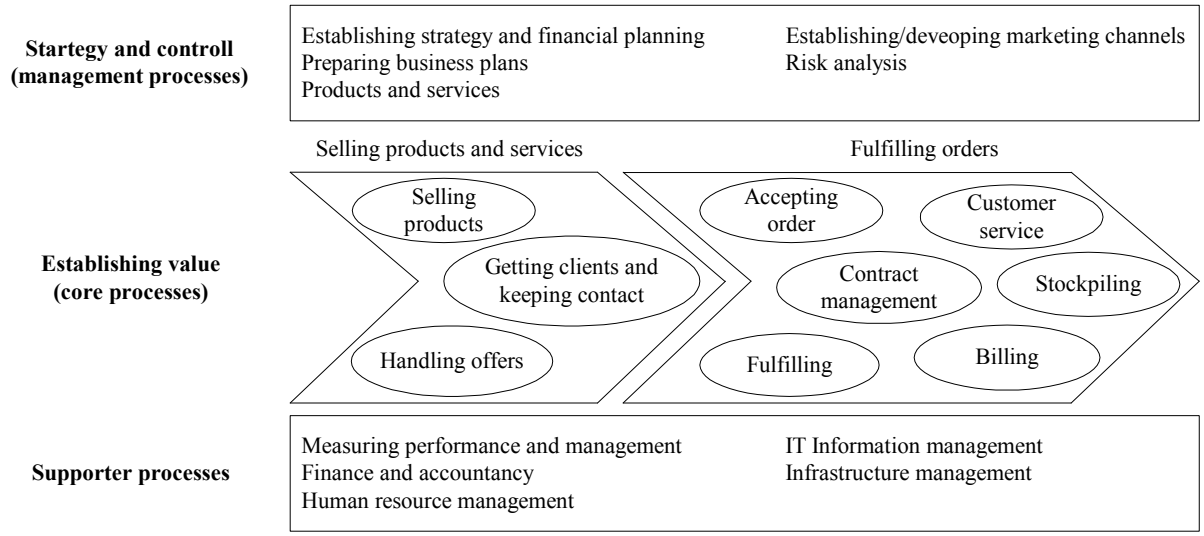
According to a different analysis of business processes, there are three process types which are bound up with each other (Dobák, 1999.):

Management processes: showing the way to the other processes. The knowledge-based processes are based on the experience of human experts; they require creativity, research and analytic ability.

Core processes: producing outputs (value) from inputs for the external customers. These are relatively stable, re-accomplished operations which can be standardized. Among them there are primary, so-called key/primary processes considering the business aims.

Supporting processes: supporting one or more other processes, usually with indirect input service. For instance, such activities which should be executed to ensure the infrastructural background and to serve the basic activity.

Figure 2 demonstrates a general business process model with examples of process categories.



Source: Bálint, Á. in Innovation management research and practice

Figure 2. General Business Process Model

The role of human being has never been negligible in the value-making processes; however, nowadays it is becoming the basis of competitive benefits, as even the most developed technology will not be able to respond to the constant changes, and the technologies become out-of-date one after the other (Tenner and DeToro 1998).

Many companies which were waiting for a miracle to solve their business problems by these process-approached changes had to confess that the process-based change is hard. Contrary to the widespread theories, creating new business processes is more than reorganizing the work processes - who does which tasks, where and in which order. To activate the new processes, the process approach should appear at the companies also regarding the human resource management. They should find a staff with appropriate competencies, the scope of activities should be defined more clearly, more enhanced and targeted training is needed to support the scope of activities. Furthermore, the decision-making should be ensured for the staff in the forefront of company, and it is also necessary to reorganize the bonus systems; the processes and the results should be in the limelight. Accordingly, as a part of the business process innovation, it is essential to audit the human processes well and to manage them consciously.

If these all would not be enough, companies should re-arrange their organizational culture by focusing on teamwork, personal responsibility, and the importance of the customer. They have to re-define the roles and responsibilities in such a way that the managers should not see the activities but the processes, and they should not control people but develop them. Moreover, the information system has to be re-arranged in such a way that they should promote the smooth operation between functions, and they should not support only certain department. (Hammer and Champy 1993).

APPEARANCE OF COMPETENCE RESEARCHES

Competence is a more and more often mentioned definition, a tool, a brick of the knowledge-based economy that is the acquaintance with something, the ability to do something and the willingness to do it, jointly. It is the rest of the new capital, the intellectual capital. However, we can speak about

organizational competencies as well, that is something which is done better by the organization than by its rivals; after all, it is related to the human being (Davenport and Prusak 2001).

Competence research can be dated back to the '60s. Industrial psychologists have always been interested in finding the factors which can predict the excellence in the most authentic way, and in finding the best employee for a company, and in getting back its investments in man-power development. With entrants to the labour market companies mainly relied on school certificates; however, these did not always show an obvious correlation with excellent performance. Success at school did not lead automatically to excellent performance at work. They thought that behaviour would be the clue, so the candidates were put through never-ending personality tests. However, these too proved not to be make reliable predictions.

Later several researchers tried to solve the problem. McCelland, a professor of Harvard University, established competence research and the basis of preparing models. He inverted the question: What is the thing that the best ones (in performance) are better at than the average performing ones?

THE RELATIONSHIP BETWEEN COMPETENCE MANAGEMENT AND HUMAN RESOURCE MANAGEMENT (HRM), FIELDS OF APPLICATION

There are several definitions for the word 'competence' even in human field. To define it more precisely, in Table 1 I review some of the definitions of 'competence':

Table 1
Definitions of Competence

Author	Definition
American Management Association	'The individual's generalizable knowledge, motivations, inmost personalities, social roles, or skills and abilities are the ones, which can be connected to the outstanding performance in a position.'
C. Woodruffe	'A set of behaviour, which should be used by the person in the position to comply with the scopes of activities and functions well.'
G.O. Klemp and D.C. McClelland	'The excellently performed people's personality, actually the individual's feature, which is essential to achieve efficient performance in a certain scope of work or position.'
R.E. Boyatzis	'The personality resulting in the individual's efficient and/or outstanding performance in a position.'
L.M. Spencer and S.M. Spencer	'The personality, which has cause and effect relationship with efficient and/or outstanding performance in a position or situation defined by previous criteria.'
R.E. Quinn	'The necessary knowledge and ability to fulfil a certain duty or role.'

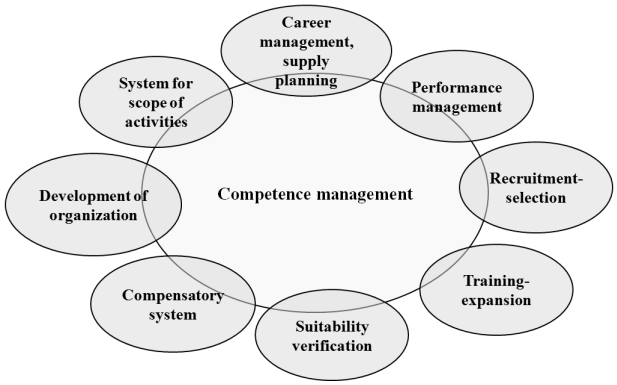
Source: On the basis of Boyatzis (1982), p21; Klemp and McClelland (1986), p32, p6; Spencer and Spencer (1993), p9; Woodruffe (1993), p29.

The common feature of these definitions is that the experts consider competences as a set of features which can describe a kind of behaviour or manner, and they are usually combined with the features needed to achieve outstanding performance. The competences divide the values and goals considered important by the specific organization into behaviours, thereby they contribute to accomplish business purposes as they enable deeper insight for the employees. In the so-called competence dictionaries you can find the skills and abilities defined with patterns of manner and behaviour, which answer how to achieve the performance goals.

POSSIBILITIES FOR PRACTICAL APPLICATION OF COMPETENCES IN THE COMPANIES' HUMAN PROCESSES

The use of competences has an appreciable influence on the successful operation of an organization. In practice the qualifications – including competencies – can be sorted into a dictionary. On the one hand its elements can be assigned to the employees, whereby the so-called individual (employee) profiles can be compiled. On the other hand the competences in the dictionary can be assigned to the scopes of activities, whereby the so-called job requirement profiles can be complied. The most essential function of the system is to compare the individual and the job requirement profiles, which is the basis of almost every human action or plan (e.g. selection, training, career planning, succession planning, etc.).

Measuring competences and applying business competence models can be beneficial in several areas of business human processes (Figure 3.).



(Henzi and Zöllei 2007)

Figure 3. Connection Between Competence Management and Human Resource Management

On the basis of competence the scope of work can be analysed and evaluated, and thereby a competence-based basic wage system can be evolved. In the competence-based human system the individual employee performance evaluation system can also be established. These all represent the extensive applicability of the new human management techniques. The organization that directs its steps towards

establishing competence management can apply the well-defined competences in the human subsystems to be developed. (Goleman, 1981.) Therefore a common terminology and a common set of interpretation based on it are ensured for both the employees and the managers.

In practice there are several competence models. You can find significant intuitive differences in competence research, mainly concerning the orientation and methods of studies. I focus here on two completely different methods. Their short description can be found in Table 2.

Table 2
The Different Approaches of Competence Research Based on Martin and Staines (1994)

	"Income" Approach	"Outcome" Approach
In the focus	personal features, e.g. power, motivation, which are or should be accomplished by the individuals	MCI standards, fields of competence or competences
Representatives	e.g. McBer	Management Charta Initiative
Orientation	person-oriented	task-oriented
Definitions	competences = person-oriented varieties, which are used by the individuals during their work	fields of competence = task-oriented results, which are related to the efficient work performance
Identification and evaluation	psychometric evaluation, expert's report, testing and examination	Analysis of function, survey, evaluation during work

In general the competence model (Freudenberg, 2004.) systematically approaches to each other the identified and the weighted competences (how), which enable goals to be achieved (what). All models can concern three levels: the whole organization (which can appear in strategic resource planning and in change management), the scope of activities (which can manifest in scope of work planning and in management), and the individual (which can be developed as a career plan).

In the last years the incursion of competence-based approaches entailed the appearance of the more and more accretive competence models. Based on Berryman (2000) the competence model describes the special combination of knowledge, abilities and features that are necessary for efficient performance. The models can function as an applicable tool in selection, training, development, evaluation and planning. Their benefit affects several fields of the organization, which is a problem for many employers. The primary aim of the competence model is to be able to predict further outstanding performance on the basis of it. Such models can be prepared for groups of organizations, for whole organizations, organizational levels, or sets of scopes of work.

According to Kleins (2004) the following should prevail for the compentences within competence models:

Combined with behaviour

On the basis of observing the behaviour of the staff, competences are used to mark a set of behaviour. In this way HOW? is more important than WHAT?.

Observable

Only the *observable* patterns can be used. The hidden features (honesty, belief, maturity) cannot.

User-friendly

The language used by the competences should be clear, should use universally accepted definitions, and should reflect the culture of the certain company, enabling the employees to identify with the firm and to increase the proprietary feeling.

Planning

The competence model has future relation as well. You should keep in mind the changes in the organization's needs, otherwise it can become useless soon.

Separate

The occurrence of the same behaviour pattern under several designations can evoke doubt in the evaluators. Therefore it is important to eliminate overlap, and to be able to discriminate among the classes properly.

The following table reviews the advantages and disadvantages of applying competence models for a company.

Table 3
Advantages and Disadvantages of Applying Competence Models (Henzi and Zöllei 2007)

Advantages	Disadvantages
Promotes change in culture	It is expensive and time-consuming to develop
Directly connects to the strategy	Its introduction needs to have thorough preparation
The utter accomplishment of the company strategy	
Common language	
Efficient support of managerial work	
Collects user-friendly information by IT support, the model is easy to apply	
Can be accomplished at any fields of HRM	
Cost-effective	
Enables comprehensive comparison	
Development-oriented among the employees	
Concentrates on the main behaviour detachedly	

In conclusion we can say that the competences have an influence on every field of human resource management. Companies can increase their efficiency by focusing on their human processes, and establishing specific business competence model, thereby enabling to companies match their human resources with the human resource needs, as there has always been and will always be a shortage of creative, communicative staff, who are able to identify with the organizational goals, to adapt changes easily, and to know the way about the information.

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